

FERABOLI



TROTTER 110

EN *USE AND MAINTENANCE*



Cod. B0D6P0024 2013-01

*) Valido per Paesi UE
*) Valid for EU member countries
*) Valable dans les Pays UE
*) Gilt für EU-Mitgliedsländer
*) Válido para Países UE

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1_INTRODUCTION

Dear Client,

congratulations on choosing a **FERABOLI** product.

The greatest safety, efficiency and working life will result from the complete observance of the instructions contained in this "**Operator Manual**".

1.1_OPERATOR MANUAL

This manual is an integral part of the machine that you have bought. The suppliers of both new and used machines are obliged to hand over this manual originally provided with the machine.

If this machine is sold again to a third party the manual must be handed over together with it.

If the operator's manual is damaged or lost, request an identical copy from our Spare Parts Service, specifying the number of the manual or, if this is not available, the information stamped on the metal data plate affixed to the machine.

Read the operator's manual carefully in its entirety and if you do not understand some points contact your **FERABOLI** dealer or our Assistance Centre, the addresses of which are given on the last page of this manual.

Inform all possible operators of the contents of this manual since the machine is to be used only by trained expert personnel who are aware of the possible dangers arising from the use and maintenance of the machine.

The manufacturer therefore declines all and any liability for damage due to negligence or failure to observe the contents of the present manual.

ALWAYS USE ORIGINAL SPARE PARTS.

Should the need arise for the supply of original spare parts, contact your **FERABOLI** dealer or our Spare Parts Service.

1.2_GUARANTEE

Reference is made to the general guarantee conditions found enclosed with the purchase contract signed by you.

1.3_USE

The round baler has been manufactured to collect and press into cylindrical bales: hay, semi-dry forage, grass and straw. A single operator on the tractor is capable of carrying out all the various operations.

Any other use of the machine that is not covered by this manual releases **FERABOLI S.p.A. from all and any liability for damage to persons, animals or things.**

2_CERTIFICATIONS

2.1_“CE” CONFORMITY

The TROTTER 110 round baler is a machine with "CE" marking in compliance with the standards of the European Union described in 2006/42/CE Directive and 2004/108/CE Directive (Electromagnetic Compatibility), as shown in the “CE Declaration of Conformity” provided with every machine.



FERABOLI S.p.A. declines all liability arising from use of the machine on products that do not correspond to European standards.

If the machine should be sold to a third party, the declaration of conformity must be handed over together with it.

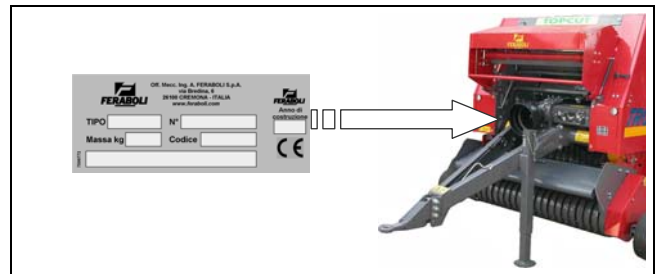
2.2_IDENTIFICATION

The round baler is supplied with:

- **Operator Manual**
- **CE Declaration of conformity**
- **Instruction handbook for the cardan shaft**

Every machine is also provided with an identification plate showing:

- **Name and address of the manufacturer**
- **“TYPE” = model of the machine**
- **“N°” = serial number**
- **“Weight kg” = weight of the machine**
- **Machine Designation**
- **Year of manufacture**
- **"CE" marking**



The information shown on the identification plate of the machine must always be quoted in any request for spare parts and/or assistance.

Copy the machine information into the plate reproduced on the back of the cover for ease of consultation.

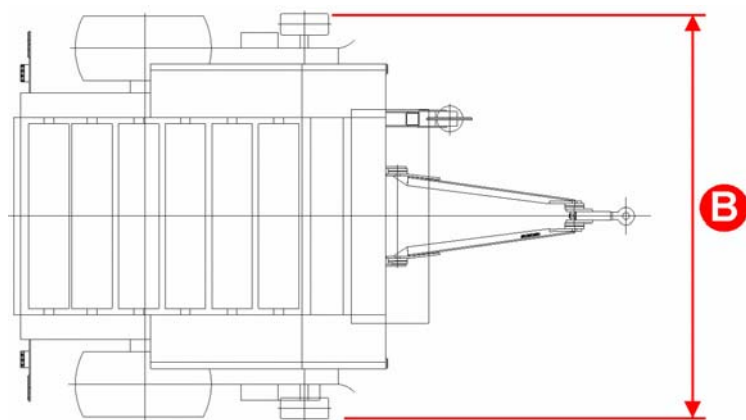
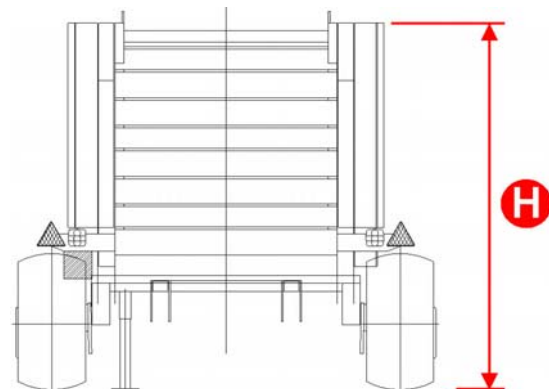
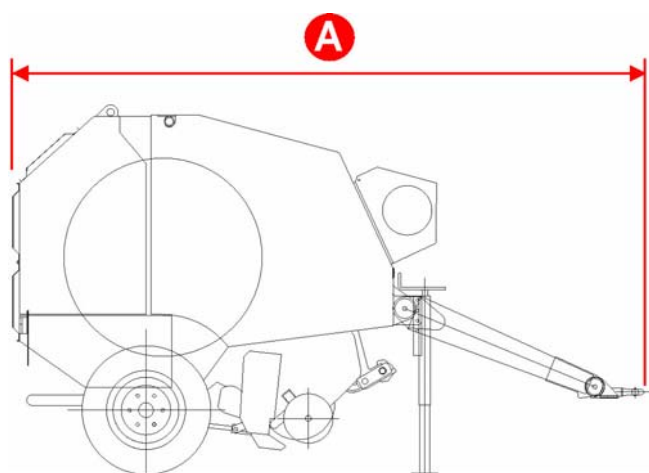
3_TECHNICAL DATA

The technical data contained in the following tables are informative therefore we reserve the right to modify them without obligation to give prior notice.

- All the measurements are expressed in millimetres (mm).
- All the weights indicated are in kilograms (kg).
- The symbol “÷” indicates a value lying between a minimum and a maximum.

3.1_DIMENSIONS

L = Length	3560
B = Width	2000
H = Height	2120



3.2_WEIGHTS

model	TROTTER 110	TROTTER 110 CUT
with pick-up	2060	2160

3.3_PICK-UP

Max. collection width	1500
Width between tines	1360
Pitch between tines	77
Roll-holder diameter	250
N°. bars for roll-holder	4
N°. tines for bar	20
N°. of overall tines	80
Support wheels	fixed
Dimensions of wheels/n°. wrappers	16.650/10
Adjustment of working height	mechanical

3.4_CUTTING DEVICE CUT

Number of knives	10
Feed rotor	three-pointed star
Knife command	Hydraulic

3.5_BINDING

N°. of skeins	1+1
Count of the synthetic/natural twine (m/kg)	500÷700/200÷400
Net	Width = 1000mm
Net runnage (g/m)	12÷16

3.6_TYRES

Series	11.5/80-15.3
Features:	
N. of plies	12-14 P.R.
Radius (mm)	410
Speed (km/h)	40
Wheel capacity (kg)	1930÷2187
Pressure (bar)	4,1÷4,75
Outside diameter (mm)	845

3.7_CARDAN SHAFTS

model	TROTTER 110	TROTTER 110 CUT
Series	3600077	3600049
Only for machines with short drawbar assembled	36P0001	

3.8_TRACTOR REQUIREMENTS *

Minimum power kw/cv	36/50
PTO speed	540g/1'
Hydraulic system	2^ single-acting outlets
Electric system	7-pin outlet 12V=
Max speed for transport by road	40km/h

(*) with tractor having a cabin

If a tractor without the cabin is used, ask the FERABOLI company for the special kit "ZMP2015 - Hydraulic Line Protection".

3.9_CHARACTERISTICS OF THE BALE

Diameter	1100
Width	1000
Chamber type	fixed
Bale density	Variable hydraulic command
Bale ejector	optional, upon request

4_GENERAL SAFETY REGULATIONS

In addition to the regulations contained in this operator's manual, observe the general regulations for safety and accident prevention in force in your Country.

This machine has been designed and manufactured for the maximum safety at work. Maintenance of these safety conditions is obligatory for the user.

Therefore, read this manual very carefully especially the safety regulations and with great attention to those operations that are potentially very dangerous; if you do this while working it will be too late!

FERABOLI S.p.A. declines all and any liability for failure to observe the safety and accident prevention regulations provided in this manual.

All and every liability for damage caused by the improper use of the round baler or modifications made without authorisation is also declined.

4.1_TERMINOLOGY ADOPTED

When you see one of the following symbols, read and memorise the message, and inform all the operators.

This is the ALERT symbol for personal safety; it indicates a possible situation of danger.

In this manual all the **ALERT** personal safety points are shown by this symbol and associated with a "**signal word**" which varies depending on the immediacy or potential of the dangerous event:



WARNING!:

The word **WARNING** indicates a potentially dangerous situation that may result in death or serious injury if not avoided.



CAUTION!:

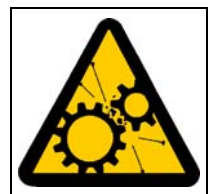
The word **CAUTION** indicates a potentially dangerous situation that may result in minor or moderate injuries if not avoided.

This is the ALERT symbol for protecting mechanical parts; it indicates a possible situation of danger.



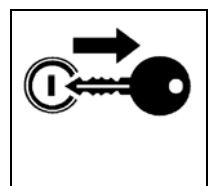
IMPORTANT!:

In association with the word **IMPORTANT**, warns that if the operations are not carried out correctly serious damage to the machine may result.



This is a warning symbol for the operator; it reminds the operator to switch off the tractor and remove the key from the dashboard.

Whenever this symbol is found in the operator's manual, you must always switch off the tractor and remove the key from the dashboard before carrying out the operations described.



FERABOLI S.p.A. declines all liability for damage due to failure to observe these warnings.

This is a symbol denoting "**Note:**"

This symbol requires the operator to pay greater attention in reading and memorising the information given!



4.2 SAFETY WARNINGS

Before putting the machine into operation:

- Make sure that you have a perfect knowledge of the controls and their functions.
- Conduct a regular check of the perfect condition of the entire machine: all the safety and protection devices.
- All the accident prevention protection guards must be mounted and fixed in accordance with the manufacturer's instructions and must not be tampered with.



WARNING! It is absolutely forbidden for the round baler to be used by persons who have not read and assimilated the contents of this manual.

4.2.1 WARNINGS TO THE INDIVIDUAL

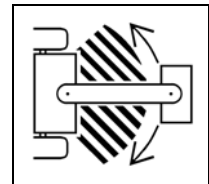
Pay attention to the danger symbols shown in this manual and on the machine itself; the adhesive danger signs must always be clearly visible.

- Make sure that they are always kept clean and replace them if they have deteriorated or are difficult to read.
- You will find the position and the list of all the danger signs in the paragraph "4.4 Adhesive Safety signs".



WARNING!
CAUTION!

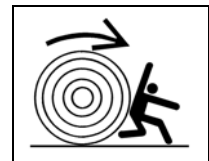
- **Never leave the machine unattended during work.**
- **Never leave the tractor unattended with its engine running.**
- **Do not allow the machine to be used by minors or persons who are not competent, or not in good health or who do not have a valid driving license.**
- The radius of action of the machine is to be considered a **dangerous area**: before putting the machine into operation make sure that there are no persons or animals around the work area, otherwise stop the machine and clear the area.
The person using the round baler is liable towards third parties for any damage caused by the machine inside the radius of action.



During operation of the machine it is absolutely forbidden to approach the mechanical parts, touch the moving parts or interpose oneself between them.

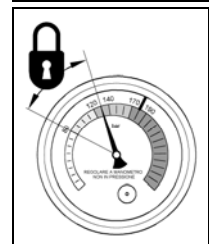
Keep your face, hands and feet away from moving parts; stay at a safe distance.

- Do not stand behind the machine, the tailgate may be open and the bale may be ejected.



WARNING!

Make sure that the tailgate is closed (control unit pilot light switching on), visually checking that the pointer of the pressure gauge must be in the yellow sector.



- The area in front of the pick-up is very dangerous; when the machine is in operation, **never introduce** the forage using the hands, feet or the help of any other object.



WARNING!

In the event of product accumulation in the feed zone:

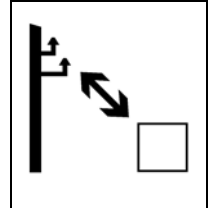
- Stop the tractor, remove the keys from the dashboard and wait for all the moving parts of the machine to stop completely.
- Switch off the "FF Control" system.
- Follow the instructions shown in the paragraph "8.4 Unblockage of the product".



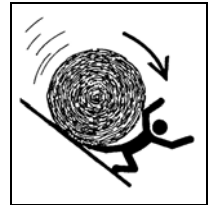
- Do not use the controls, tubes and other protruding parts of the machine to hang things on.
- Assemble, operate and detach the cardan shaft always respecting the information and safety rules for use of the cardan shaft contained in the booklet provided by the manufacturer of the cardan shaft and delivered together with it.
- It is absolutely forbidden to transport persons or animals on the machine or tractor.
- During maintenance and/or repair work it is obligatory to wear protective clothing, cut resistant gloves, safety footwear and goggles.
- Do not wear clothes that could get caught on the moving parts. If there is a risk of objects being thrown out, wear a protective helmet fitted with a visor.
For further information consult the paragraph "4.6_Clothing".



- Take great care to maintain a minimum safety distance when operating in the vicinity of electrical power lines; the machine is made mainly of metal and therefore if it comes into contact with an electrical line or if there is a discharge between the line and the machine the operator could be electrocuted with possible fatal consequences.
If it is necessary to operate in the vicinity of electrical power lines contact the competent electricity company.



- Unload the bales on flat ground or in a suitable position if the ground is sloping.



- High pressure hydraulic oil can penetrate the skin and cause serious injury. Before detaching any tubes or doing any checks the system should always be depressurised.
If any hydraulic oil under pressure should penetrate the skin go immediately to hospital otherwise there is a serious risk of infection.



FERABOLI S.p.A. declines all liability resulting from failure to observe these safety warnings.

4.2.2_WARNINGS FOR THE MACHINE



WARNING! **CAUTION!**

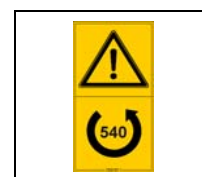
- The hydraulic couplings shall always be kept clean. To prevent them from becoming dirty or damaged, after use always refit the protective plastic cover provided at the time of purchase.
Check and if necessary replace any damaged tubes or fittings; all flexible tubes should be replaced in any case five years after the date stamped on the tube.
Before re-pressurising the system check that the tubes and connections are tight; use a piece of cardboard or absorbent paper to check for possible leaks.
- Each cardan shaft is provided with an operating and maintenance manual supplied by the manufacturer of the cardan shaft.
The protection of the cardan shaft, tubes and covers must be mounted and in perfect condition.



Note: Maintenance work on the cardan shaft must be done scrupulously following the instructions given in the booklet supplied together with the cardan shaft by the manufacturer.

Before inserting the PTO make sure that:

- the number of revs corresponds to the required number (refer to the decal located on the drawbar of the machine).
- the direction of rotation is the same as that indicated by the adhesive safety sign.
- **NEVER engage the PTO before starting the tractor engine.**
- Stop the PTO during the turns at the end of the swathes and any other tight turns.
- When the machine is detached from the tractor position the cardan shaft on the special support.
- Never start a bale if the tailgate is not completely closed; check this condition also on the display of the control unit.



WARNING!:- FIRE RISK

Remove the accumulated product regularly to reduce the risk of fire and to prevent material from winding around the mechanical parts of the machine.



If the bale should catch fire:

- 1) Immediately expel the bale and keep the tailgate open.
- 2) Move the tractor and machine away from the product still to be collected and any other inflammable material.
- 3) Put the fire out using the extinguisher, advised as part of your equipment.

There must always be an extinguisher on the tractor, especially if you are working on a dry product.

- Repairs to the wheels and tyres must be done by competent specialised personnel having the appropriate tools.



- **Never drive on public or private roads with a bale in the chamber of the round baler.**
Always empty the chamber before leaving the field. Make sure that the tailgate is closed and locked in position. Driving on the open road must be done in compliance with the traffic regulations in force in the Country where the machine is used.
It is very important to remember that the capacity for road holding, maintaining direction and braking may be influenced considerably by the load being towed.
- Before towing the machine withdraw the parking jack into the position for transport.

FERABOLI S.p.A. declines all liability resulting from failure to observe these safety warnings.

4.3_MAINTENANCE IN SAFETY



WARNING!



IMPORTANT!

Before making any adjustments or doing any maintenance, service or repair work and before leaving the machine unattended, take the following precautions:

- 1) Stop the machine and disengage the PTO.
- 2) Rest the pick-up on the ground.
- 3) Always turn off the tractor engine and remove the keys from the dashboard; apply the handbrake.
- 4) Ensure that all the moving parts of the machine have been stopped completely
- 5) Switch off the control system.



- It is absolutely forbidden to remove or tamper with the safety devices because these have been designed and installed for your protection and safeguard. If they should get damaged replace them before using the round baler again.
- Check frequently that the nuts, screws and bolts are correctly tightened.
- Check frequently and regularly the state of wear of the bearings, rollers, chains and gears.
- Do not carry out any maintenance or cleaning work if the tractor has not been turned off first and the keys removed from the dashboard.
Remove any dirt that might have accumulated from all the moving parts of the machine.

- Do not use high pressure jets for cleaning the machine; this may cause serious damage to the mechanical parts.



- Take careful note of the precautions to be taken for welding work.
- Detach the machine from the tractor, remove any residual forage and make sure that there are no plastic materials nearby in order to avoid fire risk.



- It would be advisable to have a fire extinguisher at hand just in case.



- Use the oils advised.
- Carry out the maintenance scrupulously according to this manual and have worn or damaged parts replaced by specialised personnel.



USE ORIGINAL SPARE PARTS ONLY.

- Spare parts must correspond to the requirements established by the manufacturer.
- Use only the cardan shafts indicated by the manufacturer of the machine.



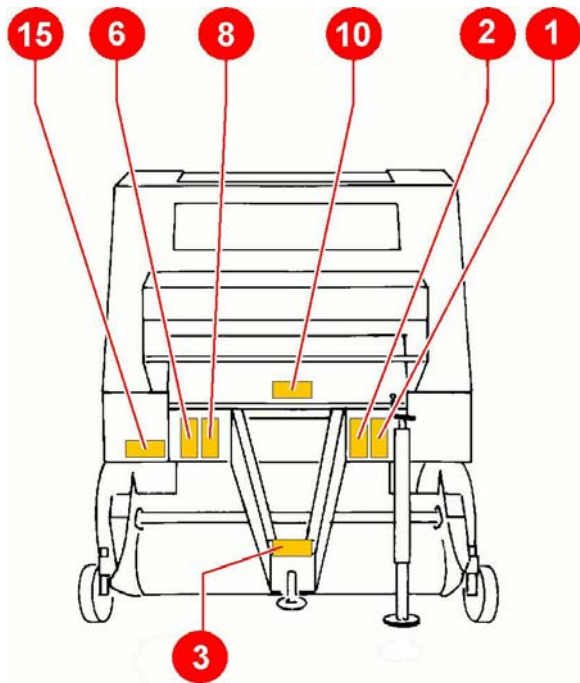
WARNING!

This operator manual with instructions for using the round baler must be read, memorised and kept for the entire life of the machine.

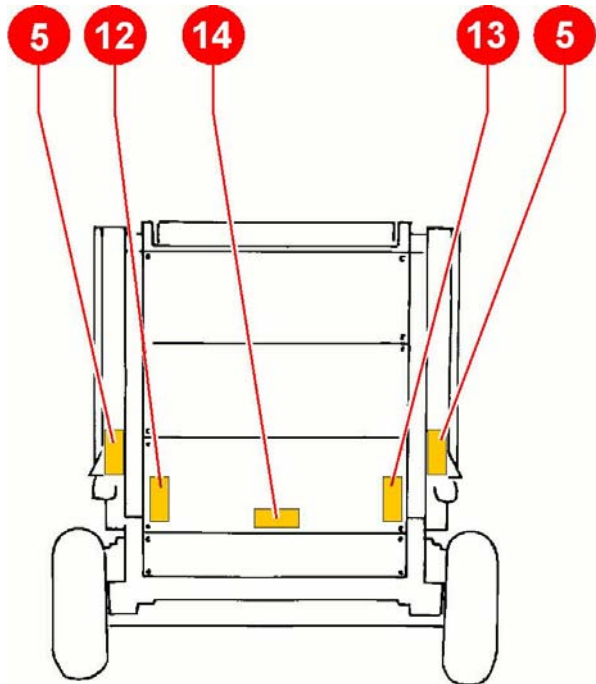
FERABOLI S.p.A. declines all liability deriving from failure to observe these warnings.

Diagram: LOCATION OF PICTOGRAMS ON THE ROUND BALER

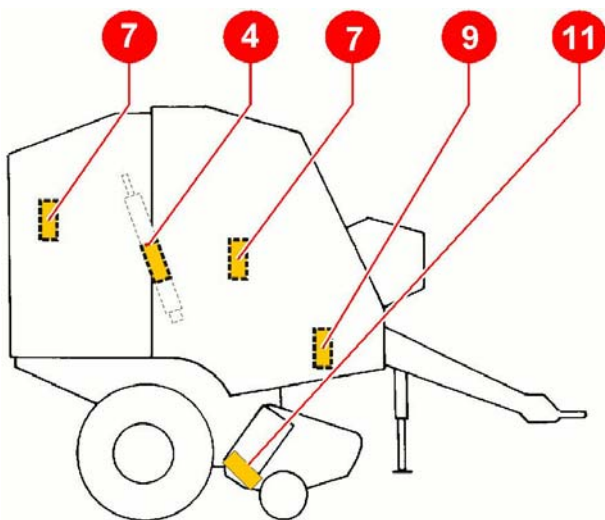
FRONT view



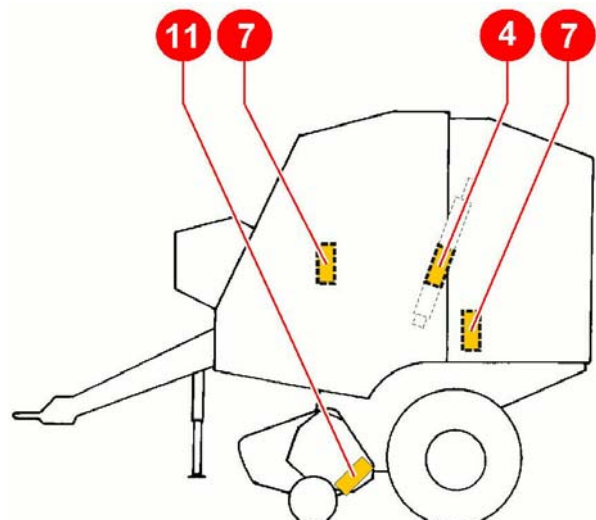
REAR view



RIGHT side
(4-7 internal)



LEFT side
(4-7 internal)



4.4_ADHESIVE SAFETY SIGNS

Adhesive signs have been affixed to the machine containing important messages regarding personal safety. Their purpose is to call the operators attention to the health and safety at work rules and warn against possible dangerous situations during work and maintenance.

- The safety signs typically have black and red pictograms on a yellow background.
- They must always be kept clean and legible and must be replaced whenever damaged or peeling off.
- If the parts of the machine to which they are affixed are replaced or painted they must be replaced as before.

For this purpose each adhesive sign bears a code number so that it may be ordered from the Spare Parts Service. Ask the Spare Parts Service for these adhesive signs quoting the relative codes.



To obtain the complete series of adhesive safety signs for the Entry round baler ask our spare Parts Service quoting the relevant code number:







- **7Z00077 “CE Safety decal”**







All the adhesive safety signs present on the round baler are illustrated and described on the following pages and represented in the diagram: **“Location of pictograms on the round baler”**.

Read carefully the meaning of the signs and inform your co-workers and whoever may approach the machine during work and maintenance.

4.4.1_PICTOGRAMS

This is the description of the adhesive safety signs placed on the machine and represented in the diagram **“Location of the pictograms on the round baler”**, shown on the previous page:

 	<p><u>1) 7500185</u> CAUTION! Before putting into service, at the beginning of each season and before doing any work on the machine, read and bear in mind the instructions for use and maintenance given in this operator manual.</p>
 	<p><u>2) 7500186</u> CAUTION! Before doing any repair or maintenance work on the machine, turn off the tractor engine, remove the keys from the dashboard and read the operator manual.</p>
 	<p><u>3) 7500187</u> CAUTION! Machine suitable for tractors with power take-off at 540 rpm and one direction of rotation.</p>

	<p>4) cod. 7500724 WARNING! Before you enter the baling chamber for any reason lock the hydraulic cylinders with their proper safety locks to prevent then moving and being crushed.</p>
	<p>5) cod. 7500198 WARNING! Do not pass by or stand under the tailgate when it is raised to avoid being crushed if the special safety locks have not been applied.</p>
	<p>6) 7500199 WARNING! Do not enter the manoeuvring space between the machine and the tractor when the engine is running. This area is particularly dangerous.</p>
	<p>7) 7500203 WARNING! Before doing any work wait until all the parts of the machine are completely still and use appropriate methods to block any undesired movements.</p>
	<p>8) 7500207 WARNING! Never feed or remove material by hand in front of the pick-up unit when parts are in motion. This could result in the upper limbs, or more seriously the person, becoming trapped.</p>
	<p>9) 7500208 WARNING! Before doing any work on the hydraulic system consult the operator manual. Oil under pressure can cause serious infections.</p>


10) 7500210

WARNING! Never remove guards and touch parts, which may also suddenly move under their own weight and cause crushing of the upper limbs.


11) 7500221

WARNING! Do not stand near the machine. This could result in the crushing or cutting of lower limbs due to the weight of the machine or lowering of its parts. Keep at a safe distance.


12) 7500197

WARNING! Do not stand behind the machine. Risk of being crushed by sudden movements.


13) 7500201

WARNING! Take great care when working near electrical lines.


14) 7500212

WARNING! Do not stand behind the machine when the bale is ejected. Keep at a safe distance.


15) 7500781

WARNING! Danger of getting caught and being dragged by the cardan shaft.

4.4.2_REFLECTORS

Two types of reflex reflectors are located on the round baler so that it can be seen more clearly during road transport:

Rb) White round reflectors (front).

Ra) Orange round reflectors (lateral).

RT) Triangular reflectors (rear).



4.4.3_CARDAN SHAFT DECAL

An adhesive sign is affixed to the cardan shaft to draw the operator's attention and remind him/her of the safety rules for using the cardan shaft.



4.5 SAFETY DEVICES

The machine is provided with safety devices in order to ensure a more correct use without risks in normal working conditions.

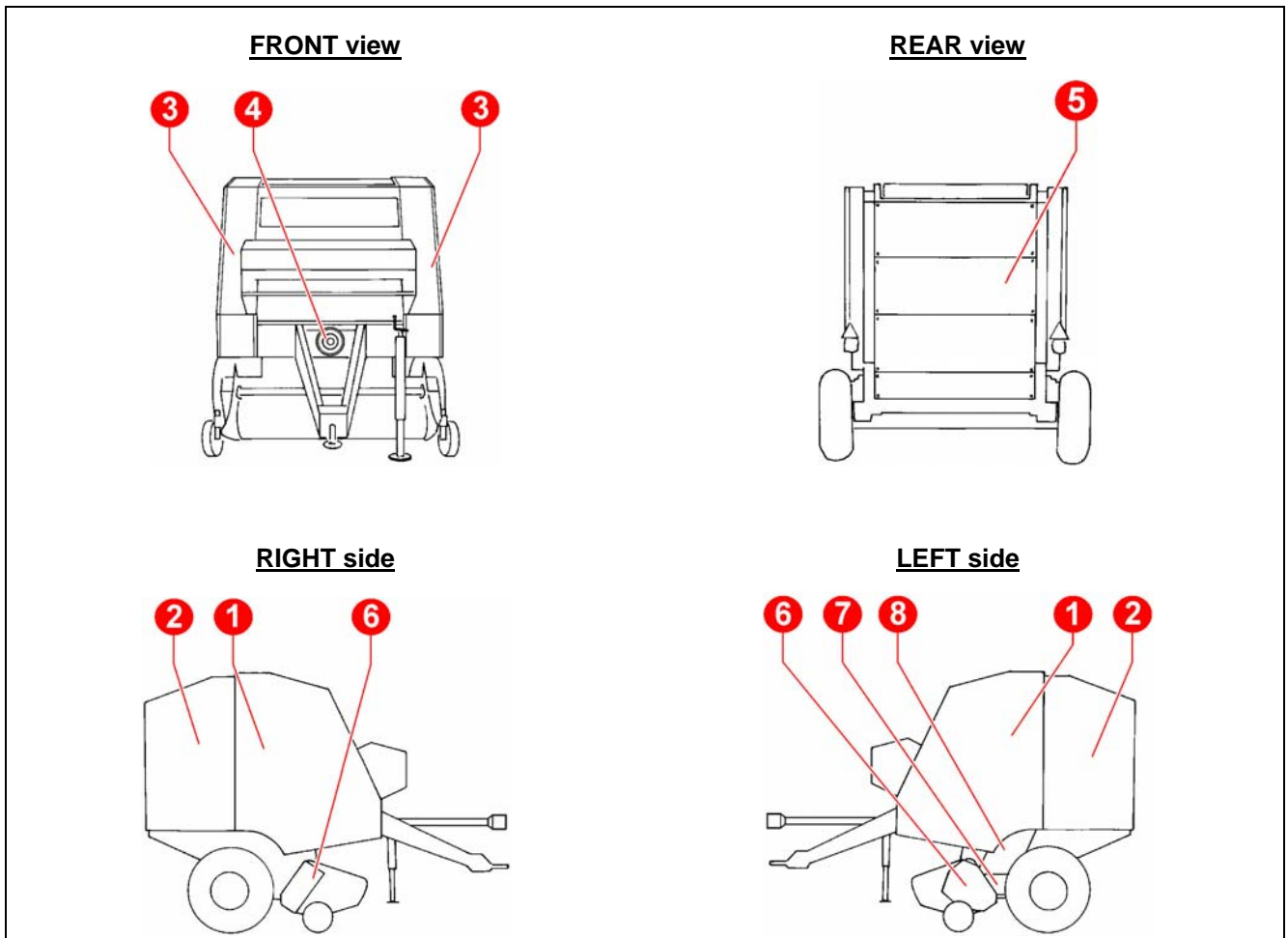


WARNING!

Before starting work make sure that all the safety devices are intact and in place.

4.5.1 PROTECTION GUARDS

The machine is provided with protection guards to protect the operator from moving mechanical parts and to protect the parts from accidental entry of foreign bodies:



- 1) Front guards
- 2) Rear guards
- 3) Side guards
- 4) Protection cover of cardan shaft / transmission box
- 5) Tailgate guard
- 6) Pick-up guard
- 7) Pick-up safety guard
- 8) Guard of big roller

The lateral protection guards are provided with a safety lock that ensures perfect closing of the protection guard with the machine and thus prevents accidental opening during work or transport.

- To open the protection guards a 13mm spanner is required.



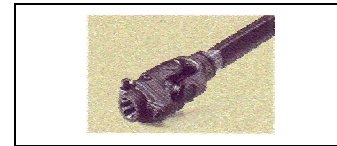
WARNING! Before removing any of the protection guards:

- Stop the machine.
- Turn off the tractor and remove the keys from the tractor dashboard.

4.5.2_CARDAN SHAFT SAFETY DEVICE

Each cardan shaft is provided with a safety system to protect the mechanical parts from high pickup voltage torques and maximum twisting moments:

- “SB” = with shear bolt.



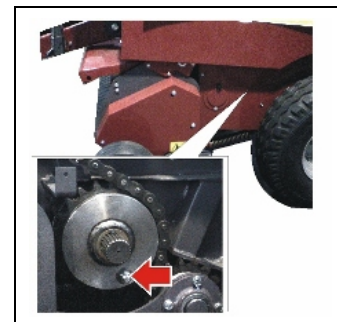
4.5.3_PICK-UP TRANSMISSION SAFETY DEVICE

The pick-up transmission is provided with a shear bolt (safety device) against overloads and foreign bodies.



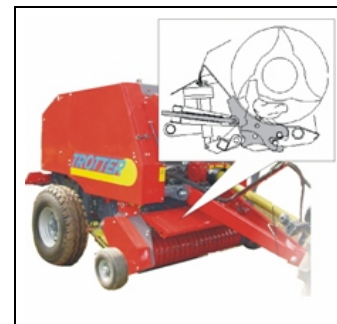
4.5.4_MECHANICAL TRANSMISSION SAFETY DEVICE FOR ROTOR

The drive transmission to the rotor is provided with a shear bolt which protects against overloads and foreign matter.



4.5.5_KNIVES

As protection against the entry of foreign bodies into the machine (stones, sticks, etc.) that may cause the knives to break, each knife mounted on a retractable spring system that allows the knife to lower automatically and then to return automatically to the work position.



4.5.6_KNIFE SECURING DEVICE LOCK

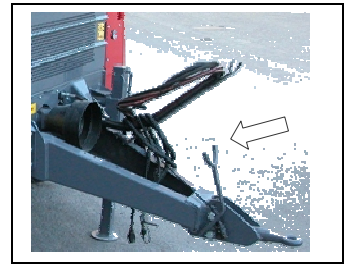
The handle “M” secures the knives of the cutting system during operation to prevent them from accidentally entering the bale forming chamber:

- “Position 1” = knives secured.
- “Position 2” = knives free.



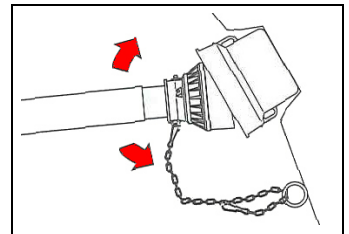
4.5.7_CARDAN SHAFT SUPPORT

This is for the cardan shaft to rest on when it is not connected to the tractor and thus to protect it from damage.



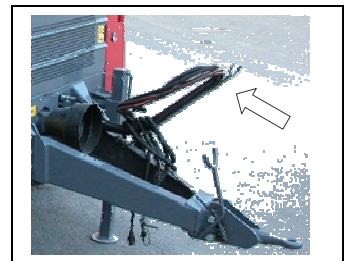
4.5.8_CARDAN SHAFT SAFETY CHAIN

This prevents the rotation of the cardan shaft protection guards during work. Attach it to the drawbar.



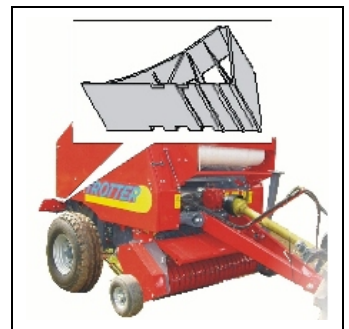
4.5.9_SUPPORTS AND CONDUIT GUIDES

These support hydraulic tubes, electrical cables and wiring.



4.5.10_PARKING CHOCKS

These are place under the tyres to block the machine and prevent any accidental movements when not in use and whenever it is necessary to immobilise the machine for repairs, maintenance or cleaning.



4.5.11_TAILGATE SAFETY LOCK DEVICE

There is a safety device to lock the tailgate when in the open position thus avoiding accidental closing when the operator is inside the machine for maintenance or repair work.

With the tailgate open, lock the safety valve (cock) that prevents the tailgate from accidentally lowering



WARNING!:

Remember to reopen the valve before closing the tailgate so as to avoid serious damage to the structure of the Round baler:

- “Position 1” = open
- “Position 2” = close



4.6_CLOTHING

- During work wear suitable clothing
- Never wear baggy clothes that flap as these could get caught in the mechanisms and moving parts of the machine.
- Long hair must be gathered.



During maintenance and repairs it is obligatory to use protection gear such as:

- cut resistant gloves,
- safety footwear,
- visor and/or goggles.



In the event of work or maintenance that could produce dust or substances harmful to the respiratory system it is advisable to use your P.P.E.



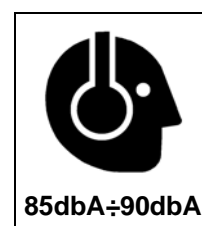
4.7_SOUND LEVELS



CAUTION!

Observe the regulations in force in your Country regarding the acoustic protection to be used.

In some circumstances the noise level produced may exceed 85dbA÷90dbA. In these cases it is advisable to use suitable personal protection equipment.



4.8_RESIDUAL RISKS

In spite of the fact that many risks have been examined and, where possible, the necessary precautions taken to reduce the risks involved during the working phases of the machine, there still remains a series of residual risks. These are listed below:

Risk of crushing, dragging, shearing, death.	<p>in the instance of contact with the moving parts of the machine during the working phase:</p> <ul style="list-style-type: none"> • IT IS PROHIBITED TO CROSS THE WORKING AREA DURING OPERATION. • IT IS PROHIBITED TO CLIMB ABOARD THE MACHINE WHILE ITS PARTS ARE IN MOTION.
Risk of collision.	<p>With the moving parts of the machine during work:</p> <ul style="list-style-type: none"> • IT IS PROHIBITED TO CROSS THE WORKING AREA DURING OPERATION. • IT IS PROHIBITED TO CLIMB ABOARD THE MACHINE WHILE ITS PARTS ARE IN MOTION.
Risk of crushing, shearing, entanglement.	<p>In the instance of contact with the moving parts of the hydraulic lifting system with hydraulic operated rear sliding tailgate:</p> <ul style="list-style-type: none"> • IT IS PROHIBITED TO STAND WITHIN THE WORKING AREA OF THESE DEVICES.

4.9 ECOLOGIA ED INQUINAMENTO

**CAUTION!**

Respect the laws in force in your Country regarding the use and disposal of products used in the operation, maintenance and cleaning of the machine.

- Whenever you drain oil from the various mechanical parts and hydraulic system and any other substance toxic and/or dangerous to the environment try to avoid leaks.
Keep these substances in a safe place until they can be disposed of correctly according to the regulations in force and availability of special disposal facilities.
- Dispose of any residual packing materials of the machine in the special containers for separate rubbish. If the machine is scrapped observe the anti-pollution laws of your Country.

5_ TRANSPORT AND HANDLING



WARNING!:

- **Never use the machine as a means of transport for things and/or people.**
- **It is strictly forbidden to tow the round baler with bales on board.**
- **Do not operate the round baler when it is being towed.**

The machine must be towed as follows:

- **Machine unloaded.**
- **All components in position for transport.**
- **All safety devices engaged.**
- The round baler can be towed on the roads by a tractor at a speed not exceeding 40Km/h.
- The machine must be hooked to the rear hook of the tractor using the towing eye attached to the front drawbar of the round baler with the special towing rod and safety pin *"7.2_Hook up to the tractor for towing"*.
- Connect the electrical system and check that all the indicator, parking and stop lights are working correctly.

Before towing:

- Raise the pick-up to the transport position (all the way up) and close the valve (closed position, *"7.3.3_Connection of the hydraulic system"*).
- Raise the rest foot to the transport position, *"7.2_Hook up to the tractor for towing"*.
- Do not connect the quick release couplings of the round baler to the tractor.
- During transport the cardan shaft is **disconnected** from the tractor and must be secured to the drawbar.
- If it is necessary to tow the machine over a long distance it may be loaded on a lorry or railway cars.

5.1_LOADING BY RAMP

It is forbidden to use ramps for loading and unloading the machine.

5.2_LOADING BY CRANE



WARNING! Before raising the machine make sure that it does not contain any bales.

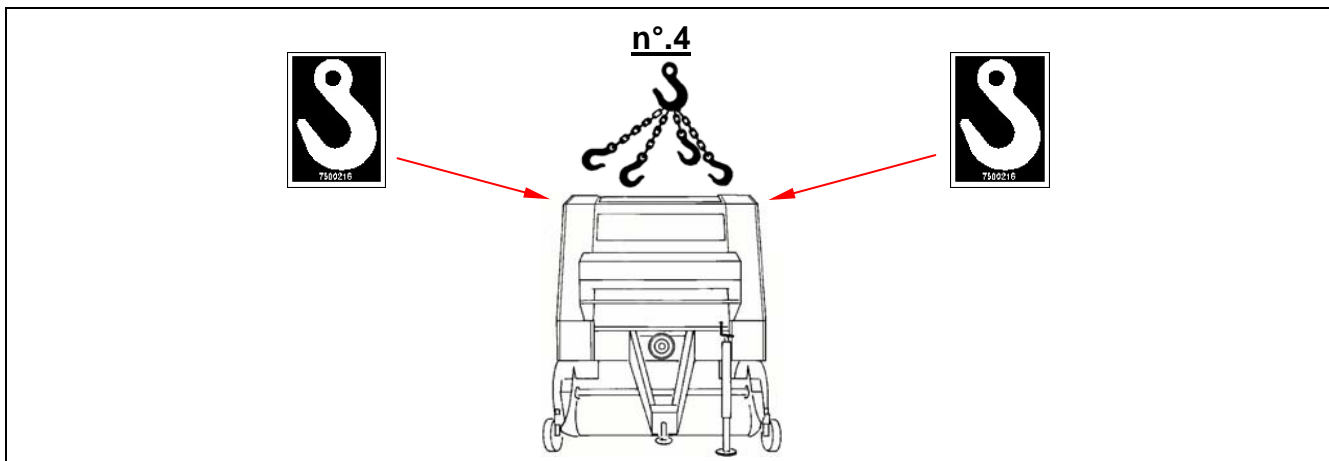
To raise the machine from the ground to the loading level, if there are no loading ramps available, use a crane of sufficient capacity; make sure that you have a crane and a load equalising arm of suitable capacity for raising the machine “3.2_Weights”.

Use of all four points of attachment for correct safe loading is compulsory.



IMPORTANT!

- The four attachment points for raising the machine are clearly visible and marked with special adhesives code 7500216.
- Attach the machine only at the four points indicated by the adhesive signs to avoid damage.



FERABOLI S.p.A. declines all liability arising from damage to the round baler caused by incorrect attachment for lifting.

Raise the machine with extreme care and move it slowly, without jerking, onto the lorry or railway car.



WARNING! Raising and transporting the machine can be very dangerous if not done with the greatest of care, therefore:

- Make sure that the means available are in good working order and suitable for the load.
- Clear and cordon off the area in which transferral is to take place.
- Make sure that the area in which you are working has been cleared and there is an escape route, i.e. sufficient space to move out of the way quickly should the load fall.
- Keep onlookers at a distance.
- Do not touch suspended loads and remain at a safe distance.
- During transport the loads must not be raised more than 20 centimetres above the ground.



CAUTION! The level on which it is intended to load the machine must be perfectly flat to avoid possible shifting of the load.

Once the machine has been loaded on the lorry or railway car it is necessary to secure it to the surface on which it stands with cables or chains using the same attachment points and anchoring points located on the same surface and to block the wheels with the chocks.



CAUTION! Make sure that there are no parts of the machine protruding beyond the maximum overall dimensions permitted by the transport.

After transport and before detaching the machine from all its attachments, make sure that its state and position do not constitute a danger.

Then remove the packing and proceed with unloading using the same equipment, methods, attention and care as in the loading operations.

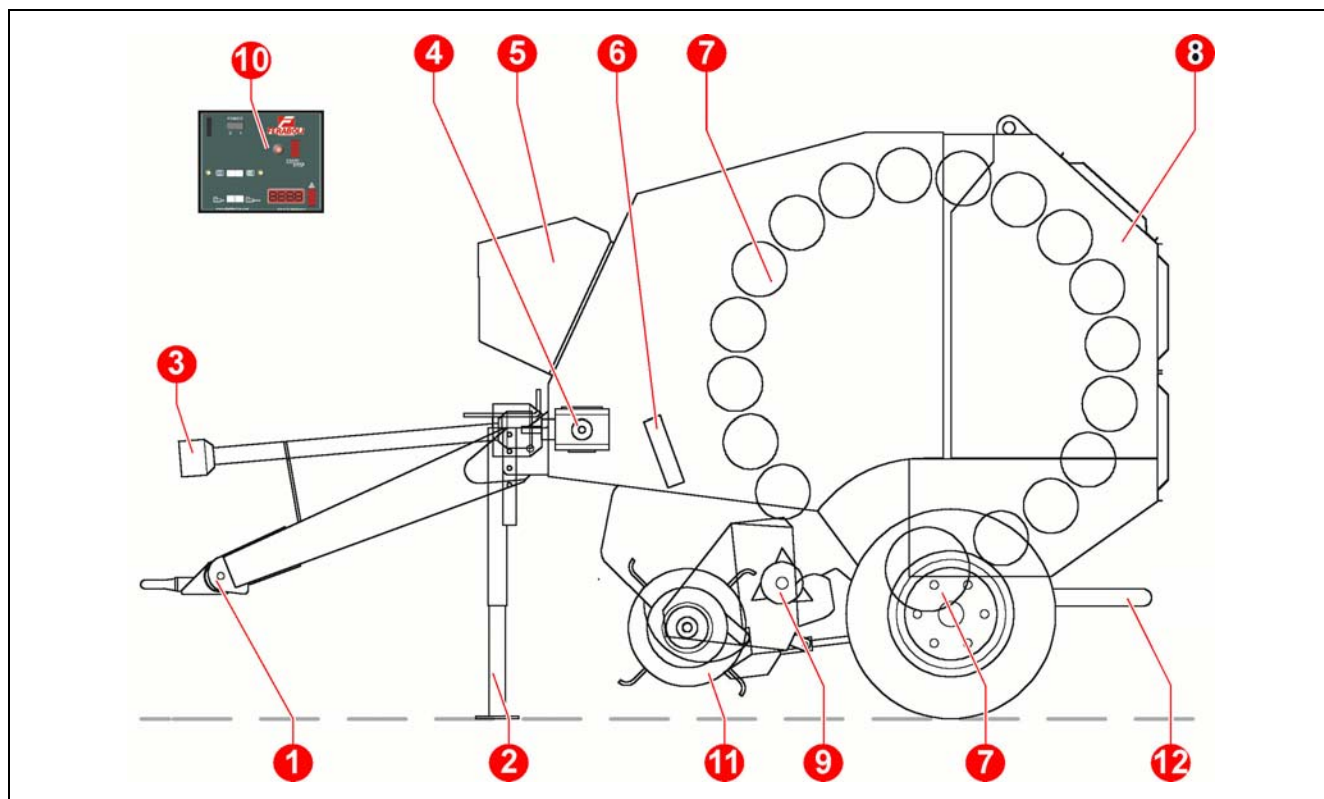
6_GENERAL DESCRIPTION

The machine consists of a structure mounted on a frame, including all the working parts, supported on an axle with wheels for movement; it is fitted with a drawbar with hitch.

The electrical system controls the control unit and lighting system for road transport.

The hydraulic system is driven by coupling the connection tubes of the round baler to the single and double acting outlets placed on the tractor.

A cardan shaft connected to the tractor and the transmission box on the machine transmits movement to all the moving parts.



6.1 MAIN COMPONENTS OF THE ROUND BALER

- 1) Drawbar
- 2) Parking jack or support leg
- 3) Cardan shaft
- 4) Transmission box
- 5) Net wrapper (if mounted)
- 6) Twine binder (if mounted)
- 7) Rollers
- 8) Tailgate
- 9) Feed system (rotor and/or cut unit, 10 knives)
- 10) Control unit
- 11) Pick-up
- 12) Bale ejector (if mounted)

6.2 DESCRIPTION OF THE WORK PROCESS

The round baler carries out the following operations:

- 1) Gathering of forage already cut in swathes
- 2) Pressing into a cylindrical shape (bale) and bale tying
- 3) Ejection of the bale onto the ground

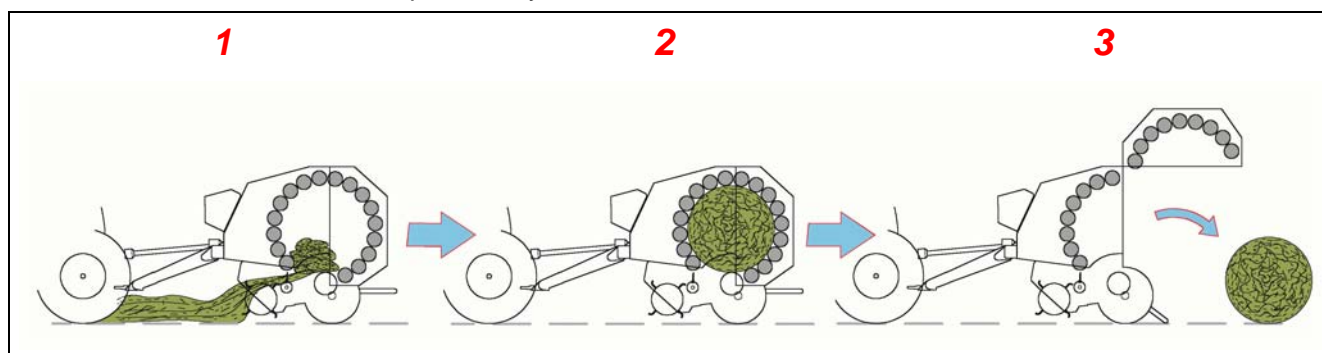
The machine gathers the product, already swept into swathes, by means of a pick-up unit.

The pick-up can be raised hydraulically and adjusted to the ground. With side aprons and two side screw conveyors, the forage is collected into a swathe 1 m wide which corresponds to the bale width.

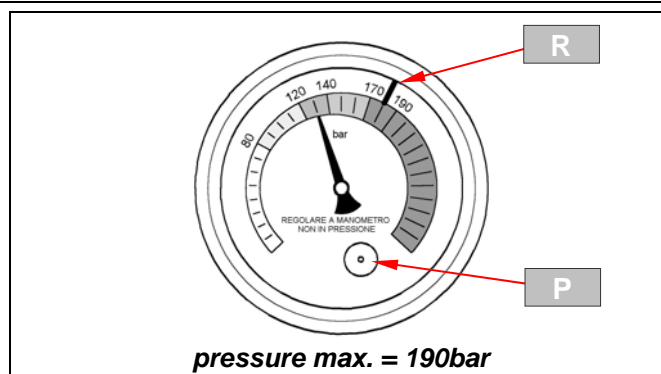
A pick-up, a conveyor unit consisting of a rotor and shaped rollers guide the forage into the compression chamber.

At this point rollers driven by chain gears, rotate the forage to form cylindrical bales.

Once the compression chamber has been filled at the desired pressure, an automatic tying system, using double twine or net, comes into operation by manual start.



When the bale has been completed the STOP light on the terminal of the control system comes on together with an acoustic signal, because the black pointer of the pressure gauge reaches the red mark "R" (value pre-set using the adjustment knob "P") and the tying has to be started.



The bale is ejected hydraulically without the need to get off the tractor.



IMPORTANT!

It is important to disengage the PTO before ejecting the bale!

7_INSTRUCTIONS FOR USE

7.1_BEFORE USE



Note: All operations are to be carried out by a single operator who must have read and understood all the parts of this manual, especially the section on safety.

Before starting work, make sure that the machine is in order, that the lubricants are at the right level and that all the parts subject to wear and deterioration are working perfectly.



WARNING!

Adjustments and preparations for work must be done with (unless there are specific instructions to the contrary in this operator manual).

- The tractor switched off and the keys removed from the dashboard.
- The machine switched off and blocked.
- Switch off the control system.



7.2_HOOK UP TO THE TRACTOR FOR TOWING



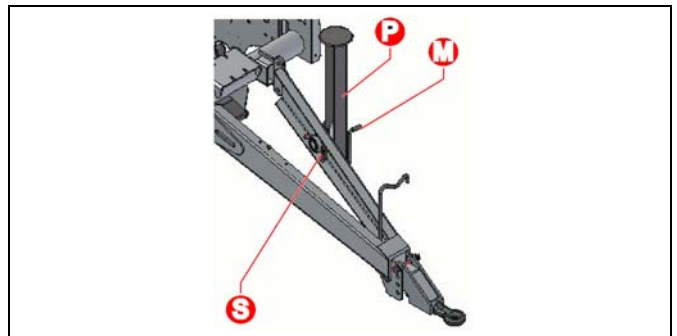
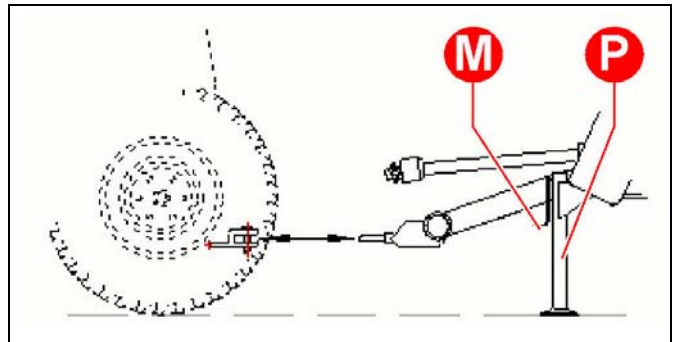
CAUTION!

Hooking up to the tractor can be dangerous therefore take great care in this operation.

Use a tractor that is suitable for towing the machine in use "3.8_Tractor requirements".

Make sure that there are no objects resting on the machine and that there are no persons and/or animals in the immediate vicinity. The drawbar of the round baler is provided with a pivoting towing eye.

- Hook up the machine to the rear hook of the tractor making sure that the machine is in a stable horizontal position and that the towing eye is at the same height as the towing device of the tractor.
- Turn handle "M" of parking jack "P" to lower or raise the towing eye until it is correctly aligned with the tractor's towing device.
- Insert the pin in the towing eye and secure it with the safety pin.
- Then remove any chocks from under the wheels.
- Remove the locking pin "S" and raise the parking jack "P" turning the handle "M".
- Lock the parking jack "P" in the transport position by inserting the locking pin "S" into the special position as shown in the image.

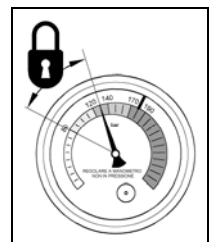


- Insert the feeder plug of the lighting system for road transport of the round baler into the socket of the tractor and check that all the indicator, parking and stop lights are working correctly.
- Make sure that the tailgate and the guards are closed properly and secured.



IMPORTANT!

Make sure that the tailgate is closed (control unit pilot light switching on), visually checking that the pointer of the pressure gauge must be in the yellow sector.



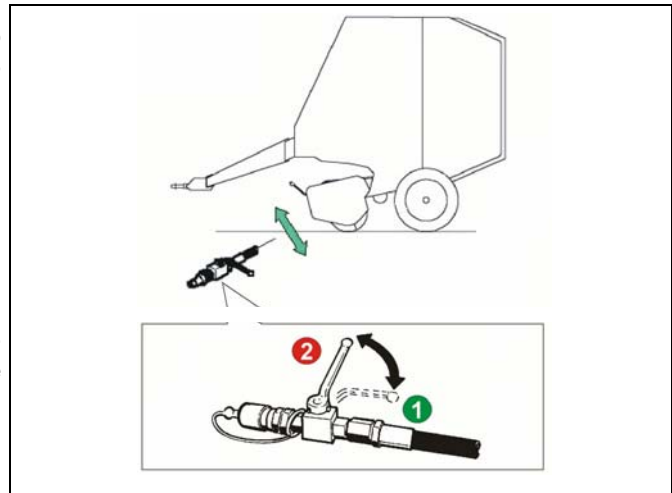
- Connect the pick-up lift-up hydraulic pipe to tractor's outlets. The pipe for the hydraulic lift-up of the pick-up unit is fitted with a stopcock.

Before lifting up the pick-up unit place the stopcock lever in the "OPEN" position

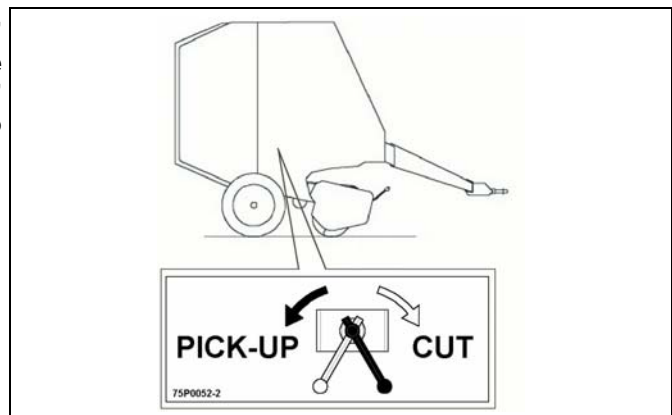
- Before transporting along the road, raise the pick-up unit and place the stopcock lever in the 'CLOSED' position to lock it in position.

1)= "OPEN"

2)= "CLOSED"



If the round baler is a "TROTTER 110 CUT" model make sure that the lever of the diverter valve is set to "PICK-UP" otherwise the knives will come into operation.



Make sure the tailgate and the guards are closed and properly locked.

7.3_HOOK UP TO THE TRACTOR FOR WORK

After completing the hooking up of the round baler to the towing device of the tractor "7.2_Hook up to the tractor for towing", retract the parking jack to the rest position.

Before connecting any of the various components of the baler to the tractor, make sure that the tractor meets the requirements for the correct working of the round baler "3.8_Tractor requirements".

Keep in mind all the basic safety rules contained in the chapter "4_General safety regulations".

Then continue with the connection of the various devices of the round baler:

- Connection of the control system
- Connection of the lighting system
- Connection of the hydraulic system.
- Attachment of the cardan shaft.

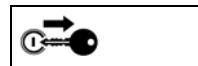
7.3.1_CONNECTION OF THE CONTROL SYSTEM

When you connect the machine to the tractor for the first time you must first connect the power cable "A" to the battery "b" 12V= of the tractor.



IMPORTANT! Be careful not to invert the polarity:

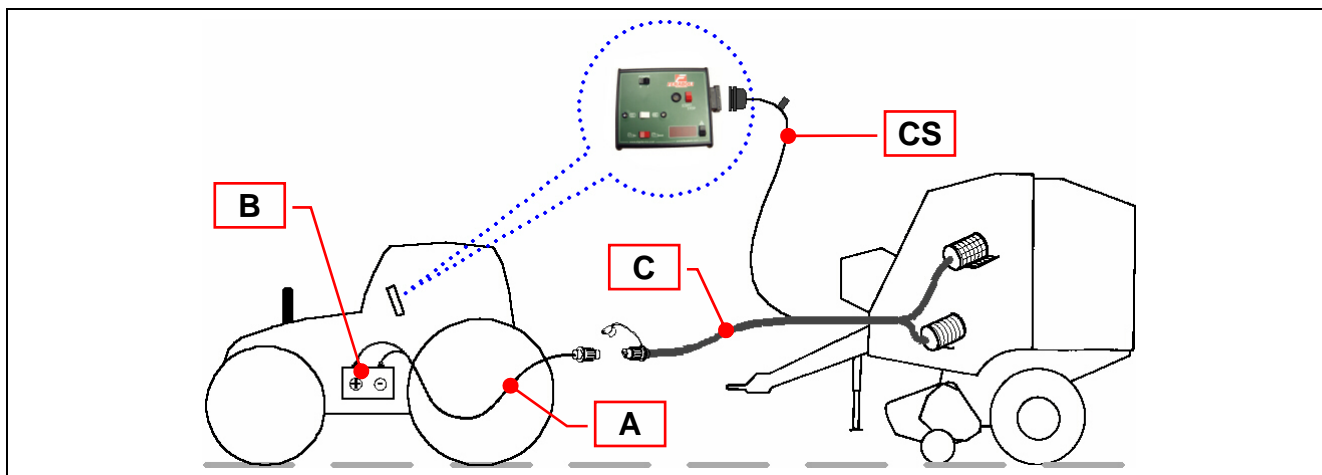
- RED cable "+" pole (positive)
- BLACK cable "-" pole (negative)
- This must be done with the tractor off.



The electrical circuit of the round baler requires a supply current with negative earth 12V=

- Install the control unit in the tractor cabin so that it is clearly visible and within the reach of the operator.
- Connect the signal cable **CS** from the machine to the display panel of the control unit.
- Connect the power cable **A** to cable **C**.

Check that the control unit comes on using key "POWER". If the cables have been connected correctly the control unit will light up



7.3.2_CONNECTION OF THE LIGHTING SYSTEM

Connect the lighting system and check that all the indicator, parking and stop lights are working correctly. Do not modify the cables and do not replace plugs and sockets that are not in conformity with the originals.

For any maintenance and/or repair work contact our Assistance Centre



FERABOLI S.p.A. declines all liability resulting from failure to observe these warnings.

7.3.3_CONNECTION OF THE HYDRAULIC SYSTEM

Connect to two single-acting distributors:

- The small pipe for hydraulic lifting of the pick-up unit is provided with a stopcock.



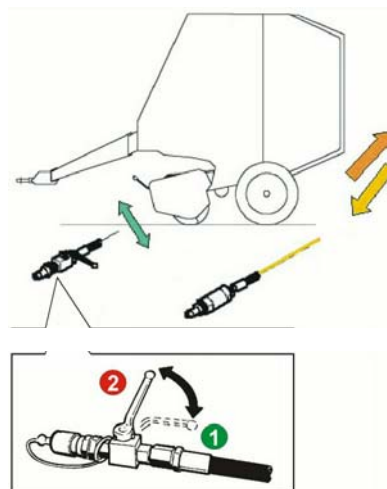
IMPORTANT!

In the “TROTTER 110 CUT” version, this also controls the engaging and disengaging of the knives.

- The large pipe, for opening and closing the tailgate.

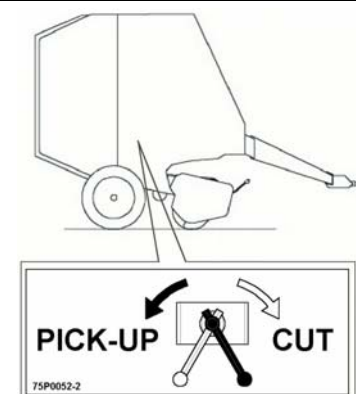
Before lifting the pick-up unit:

- Position the stopcock lever in the “1 = OPEN” position and then lift it (transport position).
- Finally turn the lever of the stopcock to the “2 = CLOSE” position to block it.



IMPORTANT!

Only on the round baler “TROTTER 110 CUT” model, make sure that the lever of the diverter valve is set to “PICK-UP” otherwise the knives will come into operation.

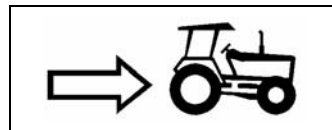


7.3.4 ATTACHMENT OF THE CARDAN SHAFT

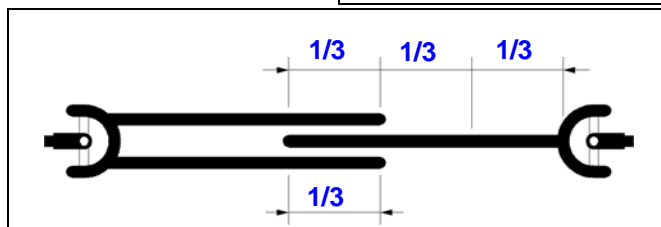
The cardan shaft is a transmission device (machine), having "CE" certification.

Each cardan shaft is provided with a user manual; follow and respect all the information and safety rules for using the cardan shaft contained in this manual scrupulously.

Mount the cardan shaft, provided with the machine, between the power take-off of the tractor and the transmission box of the machine; the connection of the cardan shaft on the tractor side is indicated on the cardan shaft itself.



Make sure that the length never exceeds the minimum distance between the machine and the tractor (cambering hazard), while at the greatest distance the two tubes must insert one into the other by at least 1/3 of their length.



- Check that the safety buttons or screws are inserted well into the grooves of the power take-off and check that the guard rotates freely; if this is not the case apply grease.
- Fix the chain to prevent self-rotation of itself and the guard.
- For further information on the use and maintenance of the cardan shaft read the special instruction booklet provided with it.



WARNING!

After all maintenance work on the cardan shaft replace the protective covers on the cardan shaft.

7.4 OPERATING TESTS



CAUTION!

The machine must always be attached to the tractor before any operation, whether empty or containing a bale.

After making the various connections described above:

- Start up the tractor without engaging the PTO and check that the various functional movements of the round baler are working correctly.

Check that the hydraulic system is working:

- Open/Close the tailgate.
- Lower/Raise the pick-up unit.
- Activate/Deactivate the knives (only "TROTTER 110 CUT" model).

Check that the electrical connection to the control unit is working:

- Switch the control unit on using the "**POWER**" button (position 1) and wait for the data to load.

Check the electrical system:

- Direction indicators.
- Parking and stop lights.

Check operation of transmission:

- Engage the PTO.



CAUTION!

Before engaging the PTO, make sure that there are no persons in the vicinity; operate carefully the first time making sure that all the mechanical parts and transmission are working correctly.

7.5_SETTING UP THE MACHINE FOR WORK

Before starting work make all the necessary adjustments to prepare the machine for your specific work requirements.

Connect the machine to the tractor as described in the previous chapters.

7.5.1_TWINE LOADING

For the twine binder to work well we advise using propylene twine, with count from 500 to 750, or a natural twine from 200 to 400 m/Kg.

The binder of your round baler can also work with other types of twine however.

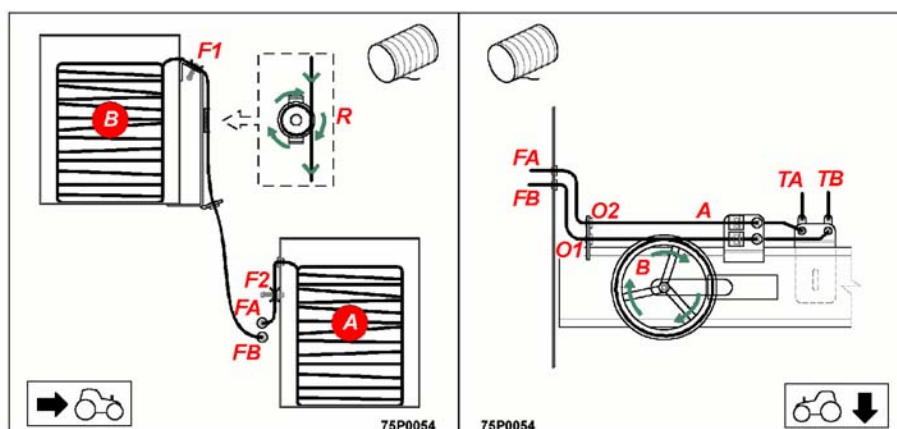


CAUTION!

- Loading and threading the twine for tying must be carried out while engine and control box are off.
- Pay great attention to the twine cut knife of the binder whenever you work next to it.



- Open the right side guard and place the rolls of twine in the special boxes.
- Thread the twine of rolls “A” and “B” as shown in the two decals placed on the machine:



Motor twine “B”

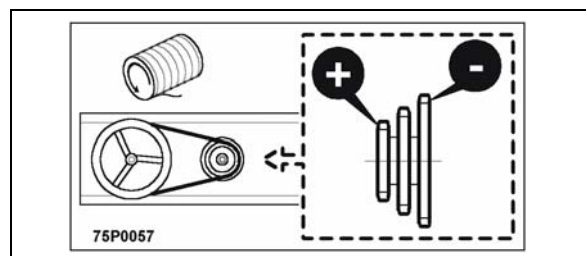
- Pass the twine through the twine braking device “F1” and make it pass twice completely around the wheel “R” which turning during tying, will signal that the twine is being wound around the bale.
- Then thread the twine through the eye “O” and then through the lower hole “FB” located on the side.
- Then proceed with the motor twine “B” through the lower eye “O1” and make it pass once completely around the pulley.
- Then thread the motor twine through the lower twine braking device and eyelet until it protrudes from the small tube “TB” by about 30cm, as shown in the figure.

Idle twine “A”

- Pass the twine through the twine braking device “F2” and the top hole “FA” located on the side.
- Then thread the idle twine in the top eyelet “O2” and continue through the top twine braking device and eyelet, until it protrudes from the small tube “TA”, by about 30 cm as shown in the figure.

Adjust the amount of twine you wish to use to tie the bale by changing the motor gear “A”.

The decal indicating the quantity of twine is shown at side.



Further information concerning adjustment of the quantity of twine can be found in paragraph “9.4_Adjusting the tying units”.

7.5.2_NET LOADING

The machine can use rolls of 2000 metres, width 990mm.

The hole inside the cardboard tube of the roll of net must be 75-78mm.

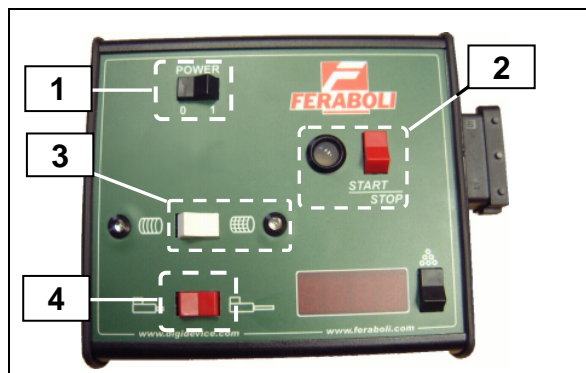
For good performance of the tying device we advise using a net of 14~16 (g/m).



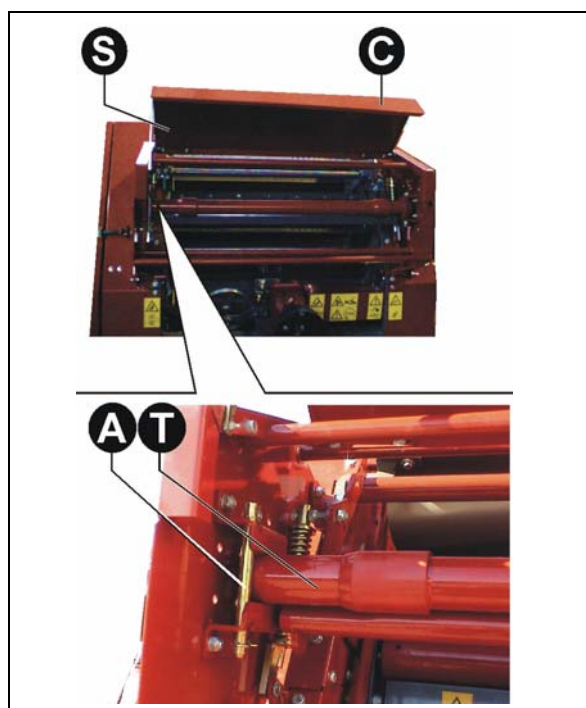
Use of the control unit during the net loading procedure is the same for both control unit models in use.

Before carrying out the operations described above:

- 1) Switch on the control unit with button **"POWER"** (position **"1"**).
- 2) Press the key **"START/STOP"** and wait for the function test to end.
- 3) Select the net wrapper (the net wrapper LED comes on).
- 4) Using the key **"4"** move the net arm completely inside the chamber.
- 1) Switch off the control unit (**"POWER"** key to position **"0"**).

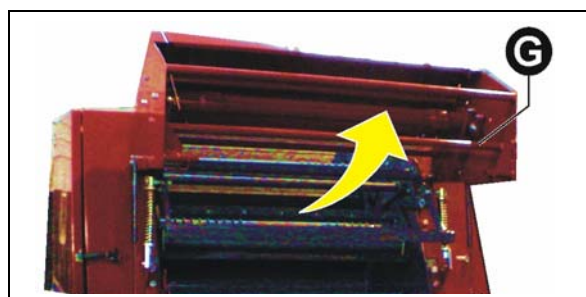


- Lift cover **"C"** and rest it on the support **"S"**.

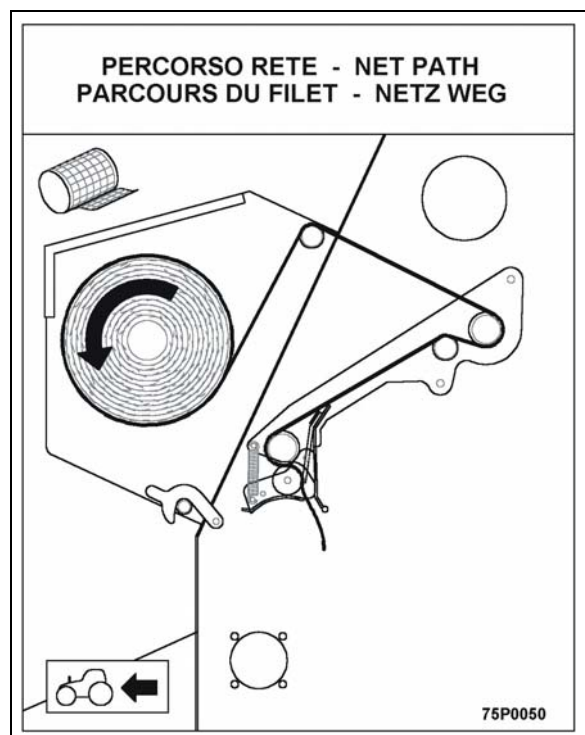


- Remove the pin **"A"** that secures the tube holding the roll of net and make the tube **"T"** come out in order to insert the roll.
- Fit the roll of net on the roll holder tube and reposition it in its housing, remembering to reposition the securing pin **"A"** removed previously.
- Lower the cover **"C"** again

- Raise the net holding box **"G"** completely.



- Pass the net over the rollers following the route shown on the decal.
- Complete the insertion of the net in the lower part of the route and leave it dangling.
- Lower the net holding box “G”.



After loading the net move the net wrapper arm back to the rest position:

- 1) Switch on the control unit: “**POWER**” key to position “1”.
- 2) Press the key “**START/STOP**” and wait for the function test to end
- 3) Switch off the control unit: “**POWER**” key to position “0”.

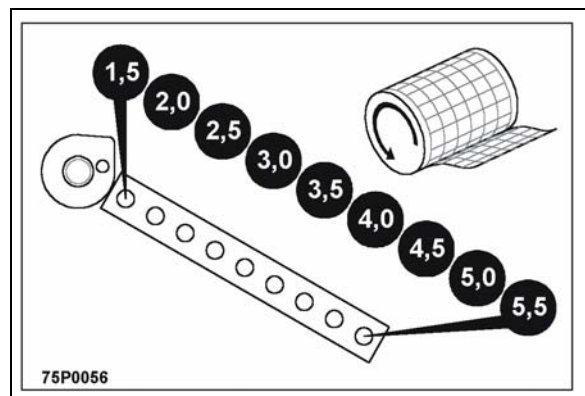


WARNING!

Take great care in putting the roll of net on the tube correctly; make sure you follow the indication of the decal accurately regarding the direction of rotation of the roll of net.

To adjust the number of turns of net around the bale, open the left side guard and select the hole according to the number of turns desired.

For further information regarding selection of the number of turns of net refer to paragraph “9.4_ Adjusting the tying units”.



CAUTION!

- Beware of the blade of the tying unit when doing any work in its vicinity.
- Make sure that the cutter has finished its movement (tying unit in the original position at the end of its stroke).

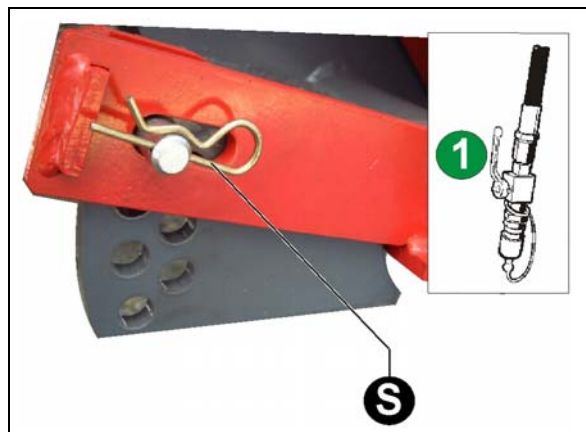
7.5.3_ADJUSTING THE PICK-UP WHEELS

It is possible to adjust the working height of the pick-up:

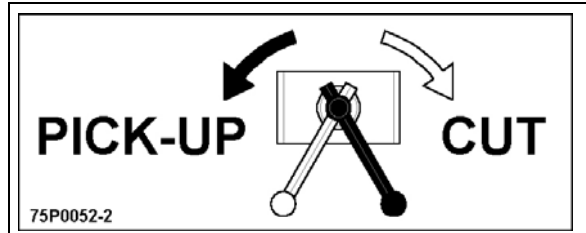
To raise or lower the height of the pick-up change the position of the pins “S”, located on the wheel arm, by inserting them into one of the holes located on the support structure, depending on work needs.

To raise or lower the pick-up:

Use the lever of the tractor selector remembering to open the stopcock located near the quick release fitting (position: “OPEN”).



Only for “TROTTER 110 CUT” model make sure that the lever of the diverter valve is set to “PICK-UP” otherwise the knives will come into operation.



WARNING!

- The tines of the pick-up must never touch the ground; therefore adjust the working height of the pick-up so that the tines remain at least 2÷3cm above the ground.
- Insert the pin “S” in the same position on both left and right sides of the pick-up.

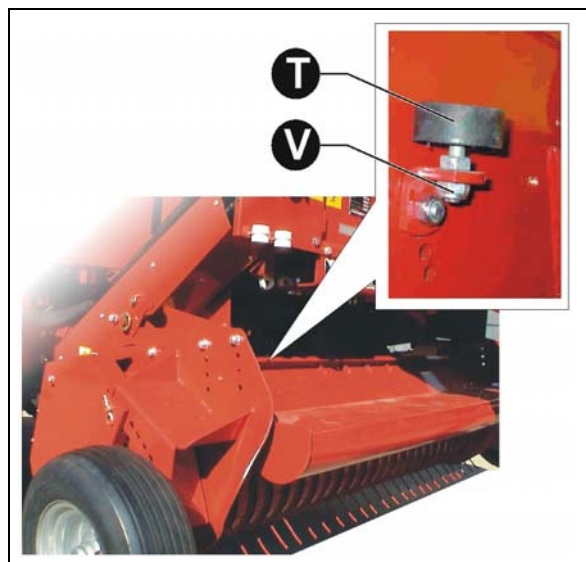
7.5.4_FEED PLATE

The feed plate optimises the collection and channelling of the product.

The distance of the plate from the tines of the pick-up can be adjusted by moving the blocks “T”.

With the machine still and the tractor engine off:

- Remove the plate.
- Loosen the screw “V” that secures the block “T”, and position it in one of the holes located on the side of the pick-up to suit the work to be done; then screw back the screws “V”.



WARNING!

Position the block “T” in the same position on both the left and right sides of the pick-up.

- Remount the plate.



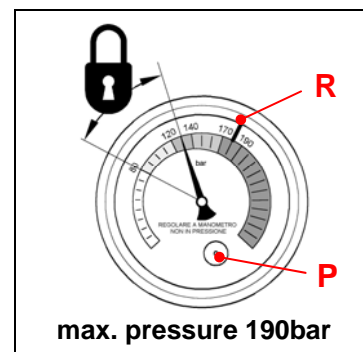
For short products and/or swaths of low volume the plate should be close to the pick-up tines while for tall products and/or voluminous swaths the plate should be further from the tines of the pick-up.

7.5.5_CHOOSING WORKING PRESSURE

Choice the working pressure according to product's features to collect.

The pressure can be increased for dry products and decreased for damp products.

To do this turn the knob “**P**” on the pressure gauge **ONLY IF THE PRESSURE GAUGE IS NOT UNDER PRESSURE**, and set the desired pressure which will be indicated by the reference mark “**R**”.



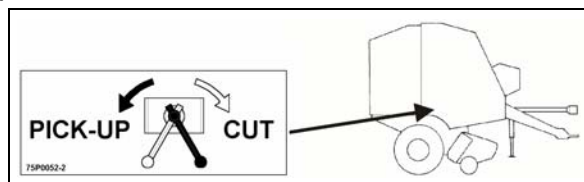
IMPORTANT!

NEVER EXCEED A PRESSURE OF 190 bar!

If the bale pressing pressure rises above this value the machine will be damaged!

7.6_CUTTING SYSTEM (only “TROTTER 110 CUT” model)

Engage the cutter unit by moving the lever of the hydraulic switch to the “**CUT**” position.



The cut length is 77mm.

To cut a longer product some of the knives must be removed.

For further information on knife adjustment, replacement and maintenance, read paragraph “9.9_Maintenance and adjustment of cut device”.

7.7_FIELD PREPARATION

To ensure the maximum efficiency during collection and baling of the various products we advise operating as described below:

7.7.1_CONDITIONING

It is important for the forage to be conditioned to ensure uniform humidity content in stems and leaves.

Long stem crops, which are difficult to work with, elastic and tough, must be conditioned in order to break the stems and reduce their resistance to rolling when the bale is being formed.

To bale maize stalks it is advisable to defibrate for better bale formation and density; **do not defibrate too fine!**

7.7.2_HUMIDITY CONTENT

The humidity content of the product must not exceed 20% to allow baling otherwise the forage will deteriorate with consequent loss and cannot be conserved well. If the humidity content is acceptable proceed with baling.

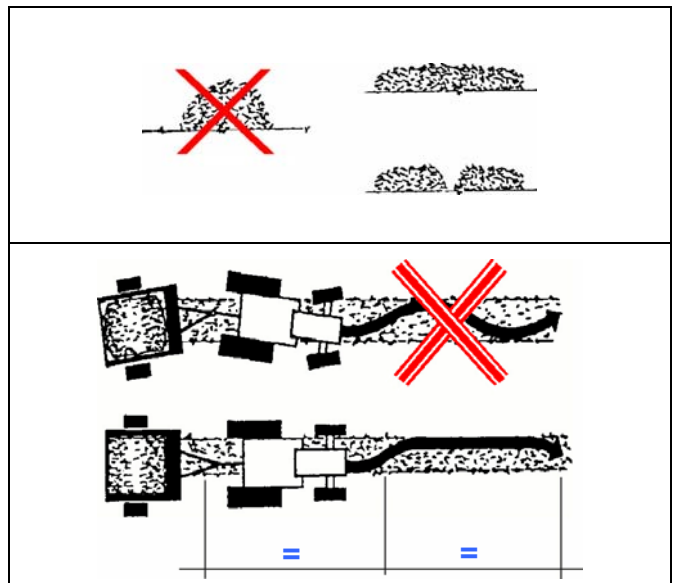
7.7.3_SWATHES

The preparation of the swathes is very important for obtaining a good formation of the bales. When the forage has been cut and dried the swathes must be formed.

The swathes can be single or double and of width equal to the width of the pick-up on your machine in order to make the best use of the round baler's capacity.

When double swathes are made it is important that they be left beside each other and not piled into one heap.

Single swathes can be 0.50÷0.60m wide, but in this case a "zigzag" guide must be followed in order to feed the press in a way that takes advantage of the entire collecting width of the baler and forms a bale of the right size.



IMPORTANT!

It is very important to form swathes with the forage well distributed and of width equal to the pick-up mounted as this will help the formation of the bale.

8 OPERATION IN THE FIELD

8.1 SWITCHING ON

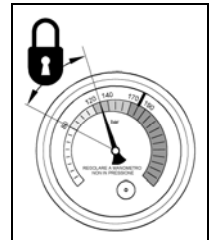
After you have set up the machine as described in the chapter “7_Instructions for use”, switch on the control system in order to start work.

Before starting work check that the arms of the tying devices (twine binder/net wrapper) are in the rest position and that the respective cutting devices are unloaded.



IMPORTANT!

Make sure that the tailgate is closed (control unit pilot light switching on), visually checking that the pointer of the pressure gauge must be in the yellow sector.



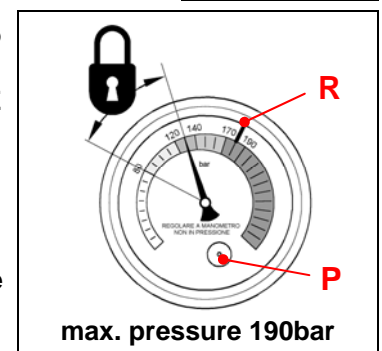
The pressure can be increased for dry products and decreased for damp products.

To do this turn the knob “P” on the pressure gauge **ONLY IF THE PRESSURE GAUGE IS NOT UNDER PRESSURE**, and set the desired pressure which will be indicated by the reference mark “R”.



IMPORTANT! NEVER EXCEED A PRESSURE OF 190 bar!

If the bale pressing pressure rises above this value the machine will be damaged!



You can now engage the PTO and begin collection.

Work with the PTO rotating at no more than 540 rpm.

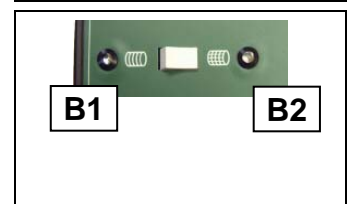
A) Switch on the control unit by turning the power on switch “**POWER**” to “1”. The control unit lights up.



B) Use selector “**B**” to select the position:

- “**B1**” to select **twine binding**,
- “**B2**” to select **net wrapping**.

The lighting up of the led located at the side of the selector indicates which selection has been made.

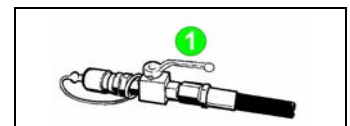


C) Press the “**START/STOP**” key: a test cycle starts in which the twine binder and net wrapper are activated one after the other.

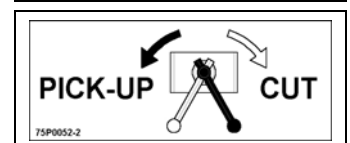


Take a position on the swathe:

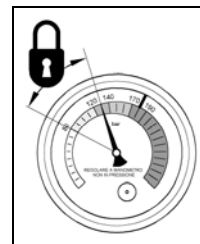
open the pick-up stop cock (position “**1 = OPEN**”) and lower it.



Only for “**TROTTER 110 CUT**” model, make sure that the lever of the diverter valve is set to “**PICK-UP**”; otherwise the knives will come into operation.



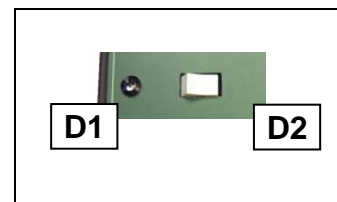
Make sure that the tailgate is closed (control unit pilot light switching on), visually checking that the pointer of the pressure gauge must be in the yellow sector.



D) Use the selector “**D**” to select the tying mode:

- “**D1**” to select “**AUTO**” mode,
- “**D2**” to select “**OPER**” mode

If you have selected the “**AUTO**” tying mode the led located next to the selector will come on.



- In the “**AUTO**” mode the tying cycle of the bale will start automatically.
- In the “**OPER**” mode the bale tying cycle has to be started manually using the “**START/STOP**” key”.



CAUTION!

Every time you turn on the control unit, the tying mode, will be always set up on “**OPER**”.

You can now engage the PTO and begin collection.

The rotation speed of the PTO must be between 450 and 540 rpm, and must not exceed this range of values.

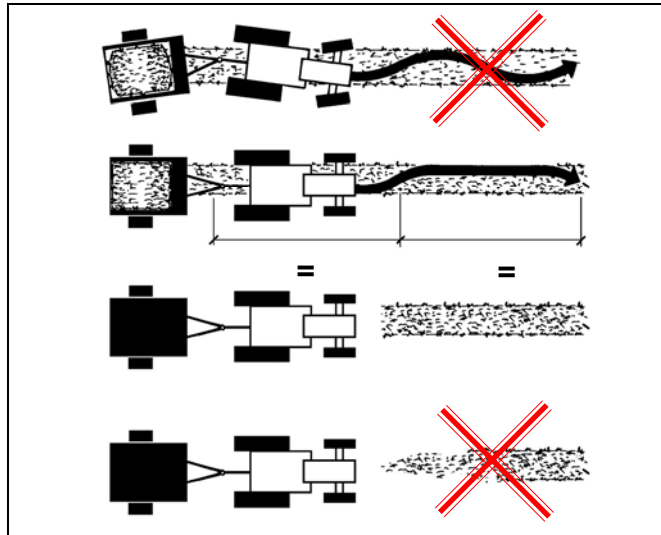
8.2_FEED SPEED

The feed speed depends on the type of product to be baled and the ground contours.

Try to feed the chamber evenly across its width so that the bale is compact and formed well throughout.

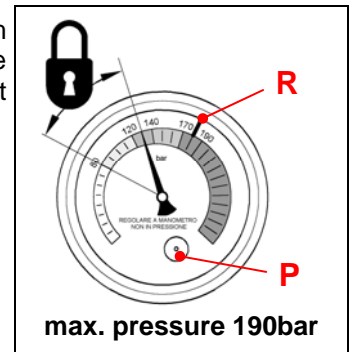
In narrow light swathes drive in a zig-zag path in order to load the chamber evenly.

Avoid swerving from side to side too frequently as this could cause the formation of a barrel-shaped bale and make tying and transport difficult.



8.3_BALE TYING AND UNLOADING

When the bale is finished the STOP light on the terminal of the control system comes on together with an acoustic signal, because the black pointer of the pressure gauge reaches the red mark “R” (value preset using the adjustment knob “P”) and the tying has to be started.



- in “**OPER**” mode, you have to press the “**START/STOP**” key to start the bale tying cycle.
- in “**AUTO**” mode, the bale tying cycle starts automatically after the red pilot light comes on.

An intermittent audible alarm consisting of three “beeps” warns that bale tying has started.

The type of tying that the control unit is getting ready to carry out is the one selected using the button “**B**” and indicated by the respective LED lighting up:

- “**B1**” = TWINE
- “**B2**” = NET

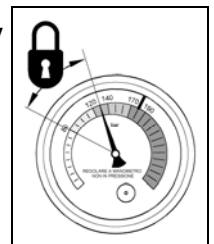
and which will flash during the entire tying cycle.

- On completion of tying process the STOP light turns red and flashes: in this way the control unit advises you that it is time to open the tailgate to unload the bale.



CAUTION!: Before opening the tailgate:

- **Make sure that you are on flat ground or in a suitable position if the ground is sloping.**
- **Keep any persons away from the machine and especially from behind the tailgate**
- Operate the lever of the hydraulic selector located on the tractor to open the tailgate.
An intermittent audible alarm consisting of three beeps gives warning that the tailgate is starting to open. While the bale is being ejected the pilot light remains off.
- After ejection of the bale the pilot light turns green and flashes: in this way the control unit advises you that it is time to close the tailgate.
- **Make sure that the tailgate is closed (control unit pilot light switching on), visually checking that the pointer of the pressure gauge must be in the yellow sector.**



- It is now possible to start a new work cycle: the pilot light turns green and remains constant.



IMPORTANT!

Never begin collection with the tailgate open or even just one hook open.

If the bale catches fire:

- Immediately eject the bale and leave the tailgate open.
- Remove both tractor and machine from the product you still have to pick up and from other inflammable materials.
- Extinguish the fire by means of a fire extinguisher - which we recommend is always available - or using water.



8.4_UNBLOCKAGE OF THE PRODUCT



CAUTION!

Should the round baler jam, do not try to remove the product from the machine while it is working.



CAUTION!

BEFORE ATTEMPTING TO CLEAR AWAY THE PRODUCT:

- Switch off the tractor, remove the keys from the dashboard and wait for all the moving parts to stop completely.
- Switch off the control unit.

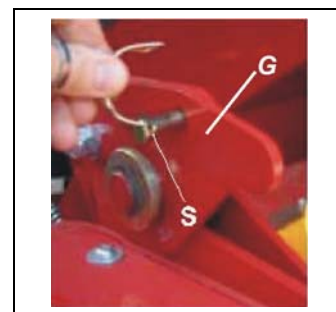


8.4.1_CLEARING THE PICK UP

The product is blocked between the feed plate and the tines of the pick-up

- Unhook and remove the safety pin “S” (on both the left and the right sides) and raise the lock hook “G”; remove the feed plate.
- Put on the cut resistant gloves and with the help of suitable equipment clear the area where the product has blocked up.

When you have completely cleared the area of the blockage remount the feed plate and secure it again with the hook “G” and the pin “S”..



After completing the operations described above re-engage the PTO.

If the pick-up fails to turn the transmission safety bolt of the pick-up could have sheared.

To replace it consult the paragraph “9.2.1_ Replacement of the pick-up safety device”.

8.4.2_UNJAMMING THE FEED ROTOR

An excessive volume of product has blocked between the rotor and the bottom feed plate.

Open the access hatch and operating the special crank handle provided which is inserted in the rotor shaft, turn the rotor in the contrary direction to push the obstructing product out.



CAUTION!

- Take great care in performing these operations as the area of the rotor is very dangerous due to the presence of cutting knives.
- If it should be necessary to remove a foreign body manually (stone, stick, etc.) before doing this remember to put on the cut resistant gloves and use appropriate equipment.

If it is necessary to remove the feed plate, consult the paragraph “7.5.4 Feed plate”.

- When you have cleared the area concerned completely remove the crank handle and put it back in its housing.
- Refit the feed plate if it was previously removed.

After completing the operations described above re-engage the PTO.

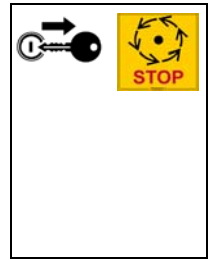
If the rotor should fail to rotate, the bolt of the CUT mechanical transmission safety system could have sheared.

To replace it consult the paragraph “9.2.2_Replacement of the mechanical safety device of the CUT device”.

8.5_PARKING**CAUTION!**

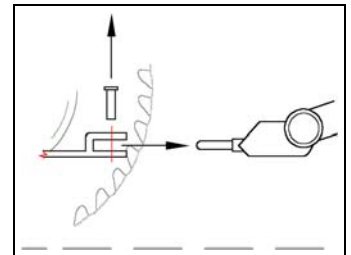
On finishing work the operator must:

- Stop the machine.
- Make sure that all the moving parts of the machine have stopped and are in the rest position.
- Stop the tractor motor and remove the keys from the dashboard.
- Switch off the control unit

**CAUTION!**

Before taking the machine back to its storage area make sure that there is no bale still loaded.

- Place the parking chocks under the wheels.
- Lower the parking jack to the ground and raise the machine by 2÷3 cm from its connection to the tractor in order to unhook it.
- Raise the cardan shaft support; detach the cardan shaft from the tractor and rest it on the support; secure it with the chain.
- Depressurise the hydraulic circuit and rest the wheels of the pick-up on the ground; move the lever of the valve to the “**CLOSED**” position and disconnect the tubes of the hydraulic system.
- Disconnect the electrical power cables of the lighting system and wind them around the support rods.
- Disconnect the signal line of the control system and wind it around the support rods.
- Then remove the control terminal and replace it in a location protected from dust and weather conditions.
- Remove the safety pin and the hook-up pin from the towing eye of the drawbar and then unhook the tractor from the machine.
- Finally drive the tractor away from your round baler.



9_MAINTENANCE AND ADJUSTMENT

9.1_ROUTINE MAINTENANCE



IMPORTANT! Regular careful maintenance lengthens the life of your machine and guarantees your personal safety.



All the screwed/bolted assemblies must be tightened according to the values contained in the table "11.4_Torque settings", unless stated otherwise.

FOR THIS MACHINE THE VALUE "8.8" REPRESENTS THE STANDARD AND THE MINIMUM QUALITY USED.

Diameter and torque wrench settings for the quality of the materials according to DIN ISO 898.

The lubrication of any machine with rotating and rubbing parts is of great importance for the duration and working order of the machine. Lubrication should therefore be done regularly and systematically "11.4_Torque settings", unless stated otherwise.



WARNING! Before doing any maintenance on the machine:

- Keep in mind all the basic safety rules contained in the chapter "4_General safety regulations".

Do maintenance work only with the machine off and all the moving parts completely still:

- Always turn off the tractor and remove the keys from the dashboard.
- Always switch off the control system.
- Never raise the machine from the ground.



Prearrange maintenance work for which the due dates are known.

This manual is of a purely informative nature. The periods between maintenance operations are for normal working conditions of the round baler therefore if the round baler is used in more severe conditions it is logical to increase the frequency of maintenance.



Replace any damaged parts:

ALWAYS USE ORIGINAL SPARE PARTS.



WARNING!

If it is necessary to do maintenance with the tailgate open, or inside the bale formation chamber itself, lock the tailgate in position using the tailgate safety lock following the instructions shown in paragraph "4.5.11_Tailgate safety lock device".

Do the maintenance work exactly as indicated in this manual and have any worn or damaged parts replaced by specialised personnel.



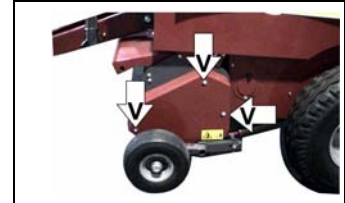
9.2 MAINTENANCE AND ADJUSTMENT OF SAFETY DEVICES

Some of the safety devices listed in chapter “4.5_Safety devices” of this manual need to be reset and/or adjusted after they have come into action.

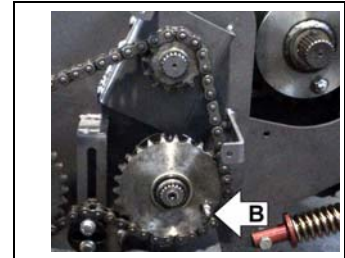
9.2.1 REPLACING THE PICK-UP SAFETY DEVICE

If the shear bolt located on the safety device of the pick-up should break, replace it with one of identical quality:

- **bolt “B” TE M8X 40-8.8 UNI5738 – DIN 960** (not galvanised; partially threaded).
- Loosen the screws “V” and pull out the safety guard located on the left side of the pick-up.



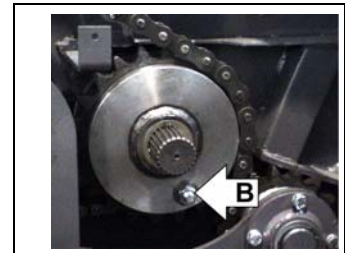
- Remove the bolt and make sure that there are no pieces of the sheared bolt caught between parts of the transmission.
- Realign the safety device holes, manually rotating the gear; reinsert the new bolt “B” and tighten it.
- Remount the safety guard and retighten the screws “V”.



9.2.2 REPLACEMENT OF THE MECHANICAL SAFETY DEVICE OF CUT DEVICE

If the bolt located on the mechanical safety device of the rotor should break replace it with one of identical quality:

- **Bolt “B” TE M14x60–8.8 UNI 5738 - DIN 960** (not galvanised; partially threaded).



- Loosen the screws “V” and remove the safety guard located on the left side of the rotor transmission.
- Remove the bolt and make sure that there are no pieces of the sheared bolt caught between parts of the transmission.
- Using the crank handle supplied realign the safety device holes; insert the new bolt “B” and tighten it.
- Remount the guard and screw back the screws “V”.



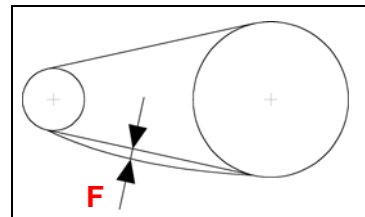
CAUTION!

Before engaging the PTO make sure that you have removed the handle and repositioned it in its housing.

9.3_ADJUSTING THE CHAIN TENSION

Regularly check the tension of the transmission chains and the working of the automatic tensioners where provided.

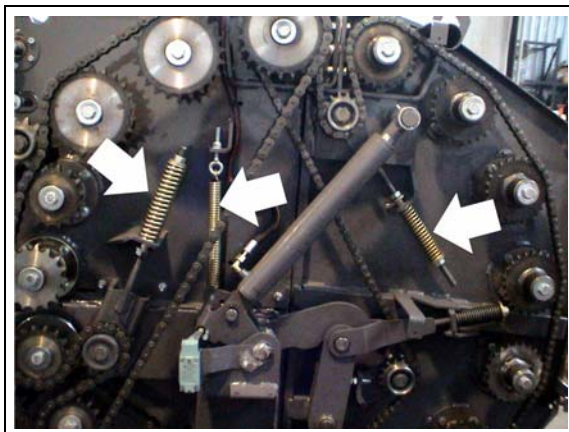
- The value "F" of chain stretching must be 5÷10mm.



9.3.1_ADJUSTING THE AUTOMATIC TENSIONERS

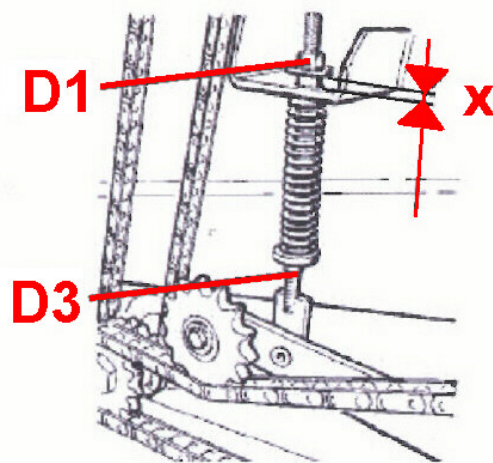
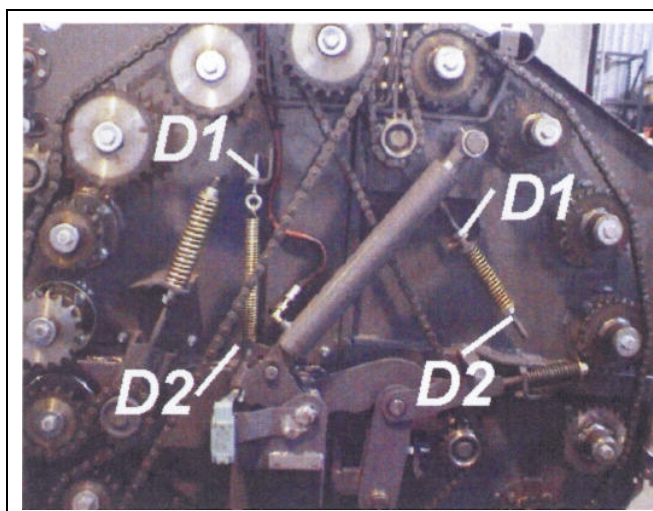
The roller chains of the machine are stretched automatically by spring tensioners; regularly check the correct tension of the chains and readjust the tension whenever necessary.

Check the working of the automatic tensioners.



Per poter verificare e regolare il tensionamento delle catene, aprire il carter anteriori e posteriori sinistri:

- Allentare il dado "d1" e agendo sul dado "d2" regolare la distanza "X" che deve essere di circa 10÷15mm.



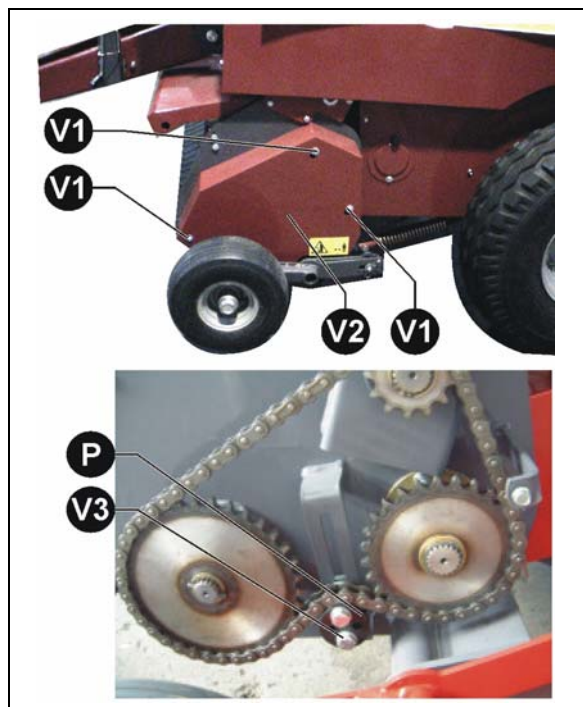
Ottenuta tale regolazione, riserrare nuovamente il dado "d1"

9.3.2_ADJUSTING THE MANUAL TENSIONERS

The roller chains of the pick-up are stretched by means of tensioners whose adjustment must be done manually. Regularly check the correct tension in the chains and adjust it whenever necessary..

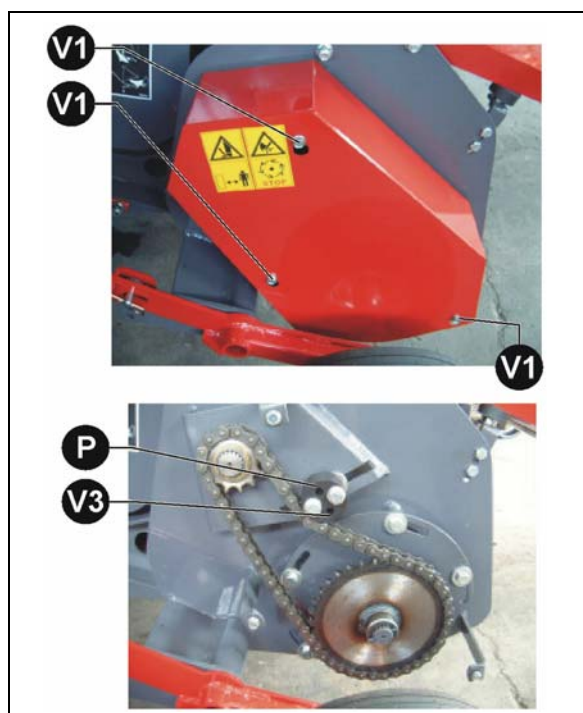
Adjustment of pick-up tensioner, left side:

- Loosen screws “V1” and disassemble the left guard.
- Loosen screws “V3”.
- Using a hammer adjust the tension of the chain by moving the chain tensioner “P” upwards with light hammer strokes.
- After adjusting, screw back the screws “V3” again.
- Refit the guard and screw it in place with the screws “V1”.



Adjustment of pick-up tensioner, right side:

- Loosen screws “V1” and disassemble the right guard.
- Loosen screws “V3”.
- Using a hammer adjust the tension of the chain by moving the chain tensioner “P” downwards with light hammer strokes.
- After adjusting, screw back the screws “V3” again.
- Refit the guard and screw it in place with the screws “V1”.



9.4_ADJUSTING THE TYING UNITS

9.4.1_DOUBLE TWINE BINDER



CAUTION!

Before doing any maintenance or making any adjustments to the double twine binder:

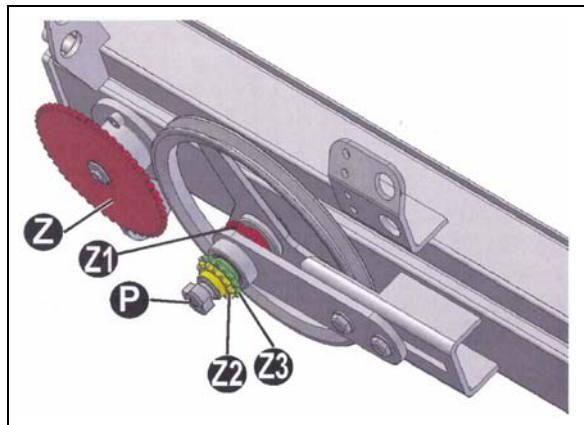
- Switch the machine off and wait for all the moving parts to stop completely.
- Always switch off the tractor and remove the keys from the dashboard.
- Always cut off the current to the control unit.



Adjustment of twine quantity:

The amount of twine used to bind the bale can be adjusted. To do this replace the pinion “Z1” with one of the other two gears located in positions “Z2” and “Z3”:

- Undo the two screws “V” and remove the pulley assembly with the chain.
- Undo and remove the knob “P”
- Pull out the pin so as to be able to remove and substitute the pinion in position “Z1” with one of the other two gears located in positions “Z2” and “Z3”.



IMPORTANT!

The smaller the pinion (smaller number of teeth) the greater is the quantity of twine used to bind the bale.

- Put the chain back on the pinion in position “Z1”
- Insert the pin again.
- Insert the remaining two gears in positions “Z2” and “Z3” again
- Tighten the knob “P”
- Put the chain back on the gear “Z”

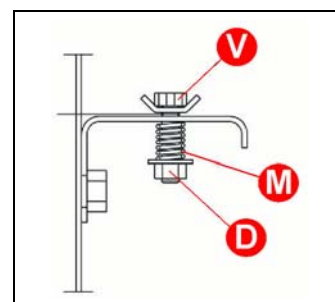
Tension the chain and secure the pulley unit tightening the two screws “V”

Adjusting the twine braking device:

There are some twine braking devices on the round baler (located on the twine roll box) to adjust the tension of the twine.

Adjust the tension of the twine on the bale by turning the nuts “D” and screws “V” of the twine braking device, to compress or release the springs “M”:

- Tightening the spring “M”, the twine will be more taut.
- Loosening the spring “M”, the twine will be slacker.



CAUTION!

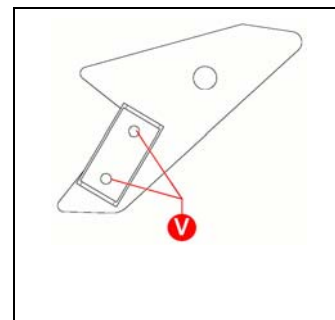
Take great care when working near the twine braking devices located on the arm of the binder, and the blade of the binder.

Replacing the blade:

If the blade of the double twine binder does not cut the twine any more, you can:

- replace it (if broken)
- turn it (if worn)

Unscrew the 2 screws “V” and replace it with one that is the same or turn it round; screw it back in place with the 2 screws “V”.



WARNING!

Take great care around the blade of the binder.

9.4.2_NET WRAPPER



CAUTION!

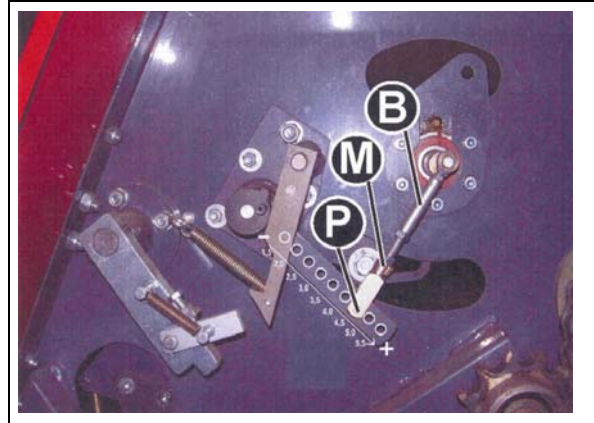
Before doing any maintenance or making any adjustments on the net wrapper:

- Switch off the machine and wait for all the moving parts to stop completely.
- Always turn off the tractor and remove the keys from the dashboard.
- Always cut off the current to the control unit



Adjusting net turns:

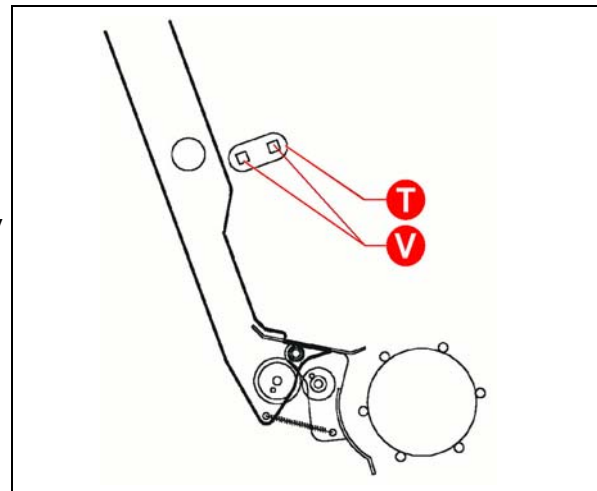
- Release the spring "M" to remove the pin "P".
- Move the arm "B" so that the pin "P" can be inserted in the hole corresponding to the number of turns of net desired to wrap the bale.
- Lock the spring "M" again.



Adjusting net feed arm:

Adjust the stroke of the net feed arm against the intermediate roller by moving the block "T", located on the right side of the machine.

- Open the right guard by loosening the relevant fasteners.
Loosen the two screws "V" and adjust the block "T" by moving it forwards or backwards.



NOTA: If you move the block too close to the roller, the arm could move forward far enough to collide with the roller during wrapping. If, on the other hand, the block is too far from the roller the movement of the arm could be insufficient and the net will not be taken and the bale not wrapped.

- When the adjustment has been made screw back the 2 screws "V" and replace the guard.



CAUTION!: Take great care when working near the arm of the net wrapper and especially the blades.

Replacing the blade:

If the wrapper blade sections do not cut the net (the blades are worn or broken) they must be replaced.

- Remove the rivets that originally fixed the blades.
- Replace the worn or broken blades and secure them again to the wrapper arm using M6x 20 screws (instead of rivets).



CAUTION!

Take great care regarding the blade sections.

9.5 ELECTRICAL AND ELECTRONIC COMPONENTS

- Check that the cables of the electrical system and the control unit have not been crushed or damaged.
- Check that all the sockets, plugs, cables and sensors are always cleaned of any deposits of earth or the product.
- Check and if necessary replace broken bulbs in the lighting system.

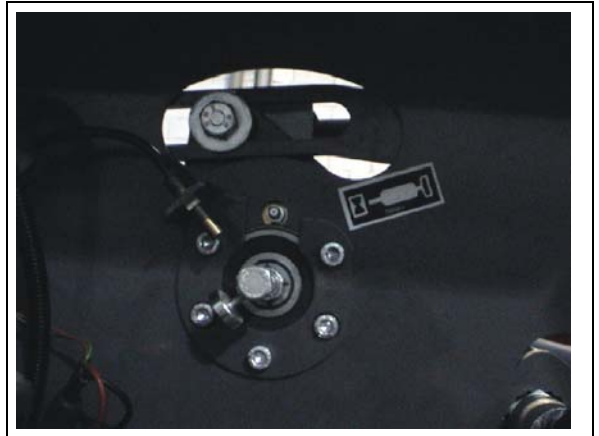
Further information regarding the maintenance of the control unit can be found in the chapter “10_Control System”.



IMPORTANT! After the first 200 bales produced check the machine in regard to the points described above.

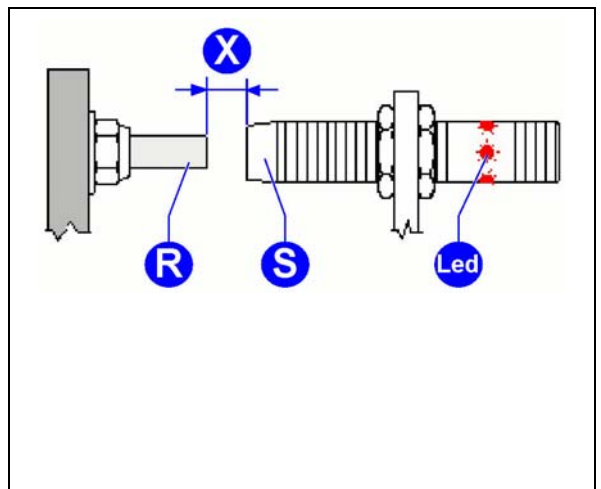
9.5.1_SENSORS

A series of “**Proximity Switches**” (sensors) have been placed on the machine. These regulate and monitor the various working phases of the machine through the control units.



Adjust the distance “**X**” between the sensor “**S**” and its abutment “**R**”, as shown in the figure (the example is only indicative):

- “**X**” = 1÷3mm
- With the control unit switched on, adjust the two nuts that secure the sensor to its mounting to move it closer to or further from its abutment.
When the “**LED**” light, on the sensor, comes on, this means that the right distance “**X**” has been obtained.
- Then secure the nuts and check that the “**LED**” comes on as it could have moved while the nuts were being tightened.



WARNING!

Adjust the sensors so that they never touch or collide with their abutments when working.



CAUTION!

Make all the adjustments on all the sensors located on the machine observing the safety regulations and taking great care at the points where there could be particular danger.



If it should be necessary, in order to gain access to the sensors, to open or remove the guards, remember always to close them and reposition them after finishing the adjustments.

9.6_ADJUSTING THE PICK-UP UNIT

9.6.1_ADJUSTING THE WORKING HEIGHT OF THE PICK-UP

The working height of the pick-up is adjusted by moving the small wheels to one of the predetermined positions in the same way on each side of the pick-up.



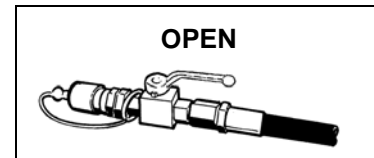
IMPORTANT!

The pick-up tines must never touch the ground; therefore adjust the working height of the pick-up so that the pick-up tines remain above the ground by a minimum of 2÷3cm.

For further information consult the paragraph "7.5.3_ Adjusting the pick-up wheels".

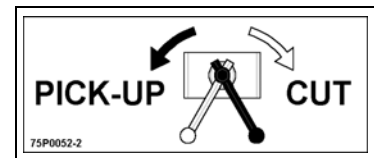
9.6.2_HYDRAULIC RAISING OF THE PICK-UP

You can raise and lower the pick-up easily using two lateral hydraulic jacks, by moving the lever of the hydraulic distributor on the tractor, first opening the stop valve (valve lever in the "OPEN" position).



For further information consult the paragraph "7.4.3_ Connection of the hydraulic system".

Only for "TROTTER 110 TOPCUT" model make sure that the lever of the diverter valve is set to "PICK-UP" otherwise the knives will come into operation.



Per ulteriori informazioni, consultate il paragrafo "7.3.3_Allacciamento dell'impianto idraulico".

9.6.3_REPLACING THE PICK-UP TINES

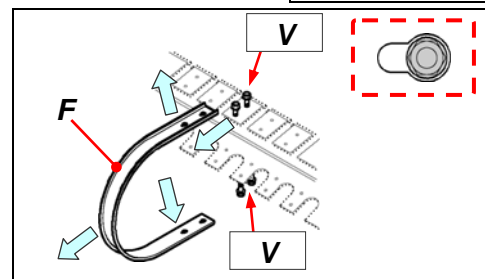


WARNING! If the pick-up tines mounted on the roll-holder of the pick-up have to be replaced

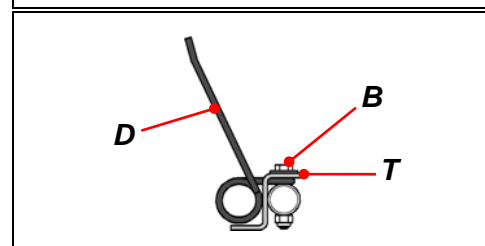
- Stop the tractor, remove the keys from the dashboard and wait for all the moving parts of the machine to stop completely.
- Switch off the control system.



Loosen the 4 screws "V" (2 above and 2 below) which fix the band "F" corresponding to the tine to be replaced and then pull out the band, passing the head of the screws "V" through the hole of the slot located on the band.

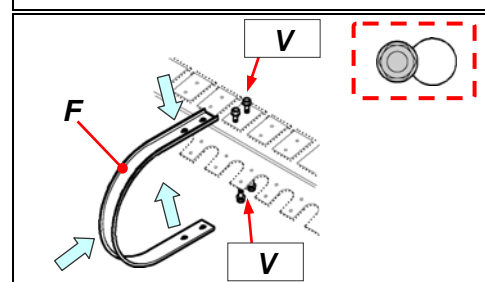


Unscrew the bolt "B", remove the tine "D" and the related block "T". Replace the pick-up tine "D" with a new one of the same type. Screw back the block "T" and the bolt "B".



Replace the band "F" inserting it over the screws "V" and then push it all the way against the screw.

Finally screw back the 4 screws "V" with a tightening value of 15Nm



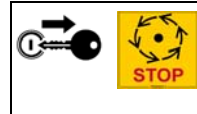
9.6.4_ADJUSTING THE PICK-UP CAM

Adjust the position where the product is released from the pick-up tine by moving the cam located on the right side of the pick-up

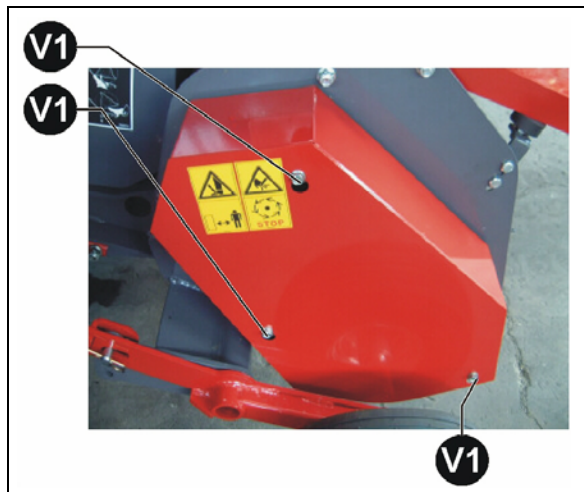


WARNING!

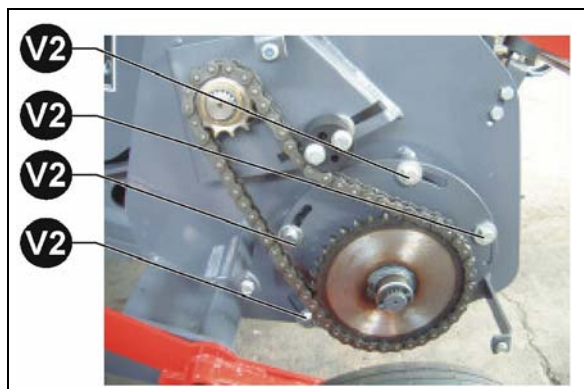
- Stop the machine and wait for all the moving parts to stop.
- Switch off the tractor and remove the keys from the dashboard.



- Unscrew and remove the screws “V1” and the right guard of the pick-up.



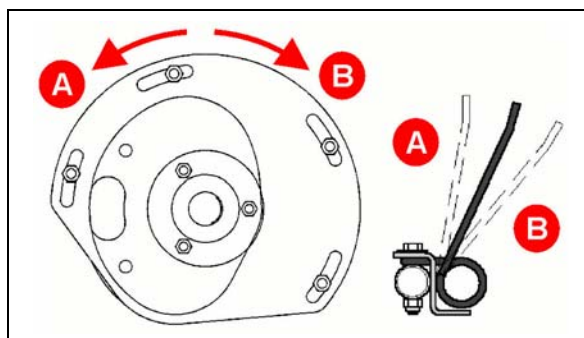
- Loosen the 4 screws “V2” that hold the cam.



Adjust the position of the cam, rotating it so as to move the pick-up tine nearer or further from the transport assembly.

Rotate the cam towards the position:

- “A” = to move the tine nearer to the pick-up assembly.
- “B” = to move the tine away from the pick-up assembly.
- Screw back the 4 screws “V2” to secure the cam again.
- Refit the right guard and secure it with the screws “V1”.



9.7_MAINTENANCE AND ADJUSTMENT OF THE CUT DEVICE (only model “TROTTER 100 TOPCUT”)

The knives or false knives must be removed or put back whenever you do the following:

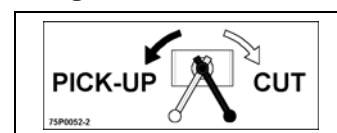
- Remove all or only some of the knives.
- Remove some of the knives for sharpening.
- Replace all or only some of the knives with false knives



CAUTION!

Before removing or assembling knives:

- Open the tailgate and lock it in position using the Tailgate safety lock device, following the instructions given in the paragraph “4.5.10_Tailgate safety device”.
Before closing the tailgate remember to release its safety lock.
- Switch off the machine and wait for all the moving parts to stop completely.
- Always switch off the tractor and remove the keys from the dashboard.
- The knives are sharp and cut easily, it is advisable to use cut resistant gloves!
- The lever of the hydraulic selector must be set to “CUT””

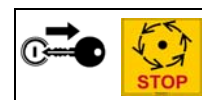


9.7.1_REMOVAL OF KNIVES

To remove the knives it is necessary to **disengage** them beforehand.

Procedure:

- 1) Open the tailgate and block it with the cock valve.
- 2) Switch off the tractor and remove the keys from the dashboard!
- 3) Release the knives by moving the lever located on the right side of the machine.



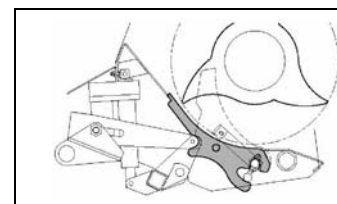
CAUTION!

The knives are sharp and cut easily; always wear protective gloves!

- 4) Enter the baling chamber and take hold of the knives to be removed at the tip by lifting them.



It is necessary to put false knives in the place of the knives removed so that the product does block up the seats of the knives and make it difficult to replace the knives later.



9.7.2_FITTING KNIVES OR FALSE KNIVES

To proceed in fitting knives or false knives they should be **disengaged** beforehand.

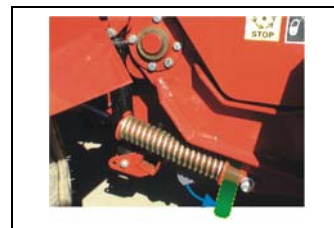
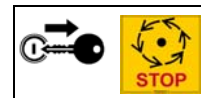


CAUTION!

The knives are sharp and cut easily; always wear protective gloves!

Procedure:

- 1) Open the tailgate and lock it in position with the cock valve.
- 2) **Switch off the tractor and remove the keys from the dashboard!**
- 3)) Disengage the knives by moving the handle located on the right side of the machine.



- 4) Take hold of the knives by their ends and insert them making sure that they slide into their housings perfectly.
- 5) Lock the knives and false knives using the lever located on the right side of the machine.



WARNING!

If they are not locked into position there is the risk that they might enter the chamber together with the product to be baled!

9.7.3_SHARPENING OF THE KNIVES OF THE CUT UNIT

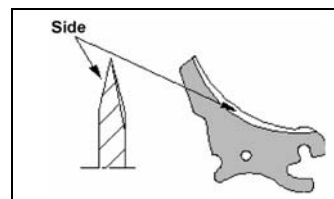
The knives should be sharpened with suitable equipment whenever necessary. Bear in mind that knives sharpened well reduce the power requirement and give a better quality cut.



WARNING!

When sharpening, be careful not to cause the knives to heat up as this can compromise their resistance to wear.

- Only the part marked as **SIDE** of the knife should be sharpened.



CAUTION!:

- Always work with care bearing in mind the safety regulations.
- The knives are sharp and cut easily; handle them with great care and always use adequate gloves and/or protective gear.

9.8_WHEELS AND TYRES

Tyres of various dimensions can be fitted on the round baler. Check the inflation pressure regularly for the type of tyre fitted to you machine referring to the pressure values given in the table "11.5_Tyre pressure values".

- The inflation pressure of the **pick-up wheels** should be: **3,4bar**.
- Check the torque of the nuts on the stud bolts of the wheel hubs regularly. It should be **250Nm**.
- Repairs to the wheels and tyres must be done by specialised personnel provided with suitable equipment.



9.9_BOLT TIGHTENING

Regularly check the securing bolts and screws and if necessary adjust them to the torque values advised in the table “11.4_Torque settings”.

- Check if all the bolts are correctly tightened after the first three hours of work.
- Check if all the screws and bolts are correctly tightened after the first 10 bales formed by the machine.

9.10_WELDING

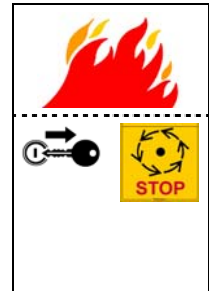


WARNING! FIRE RISK!

- Never do welding work on your baler when there is a bale inside the chamber.

Before doing welding work on your baler:

- Stop the tractor, remove the keys from the dashboard and wait for all the moving parts of the machine to stop completely.
- Disconnect all the electrical and electronic functions
- Switch off the control system.



For further information consult the chapter “4.2_Safety warnings”.
In any case take great care in these operations.

9.11_LUBRICATION

Regular lubrication is the best guarantee against breakdowns and repairs. Apply lubricants regularly and always use good quality greases and oils.



IMPORTANT!

- In general use grease type: **AGIP GR MU EP0**
- In the transmission box use oil type: **AGIP BLASIA EP 150**
- In the automatic oil system tank for the chains use oil type: **AGIP OSO 100**



IMPORTANT!

Observe the laws in force in your country regarding the use and disposal of oils and lubricants.

- Lubricate and grease all the rotating part: crown wheels, supports, bearings, chains, pins and shafts.



WARNING!

Always apply lubricants in respect of the safety regulations contained in the chapter “4_General safety regulations”.

Before greasing or oiling you baler:

- Stop the tractor, remove the keys from the dashboard and wait for all the moving parts of the machine to stop completely.
- Switch off the control system.



Note: if it should be necessary to open or remove any guards in order to access the various lubrication points, always remember to close and reposition them afterwards.

9.11.1_GREASING

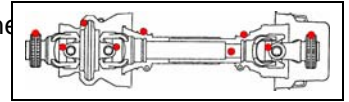
Lubricate and grease all the points indicated by the special adhesive signs: “**7500214**”, present on the machine every 30 hours of work.



Lubricate and grease all the points indicated by the special adhesive signs: **7500214**, present on the machine every 30 hours of work.



Grease lubricate the cardan shaft following the instructions contained in the instruction handbook supplied with the cardan shaft.



9.12_HYDRAULIC OIL

The hydraulic controls are high precision components and require clean filtered oil:

- Regularly check the level and state of contamination.
- Check the seal and locking of the hydraulic tubes and for any oil leaks.



IMPORTANT!

Use the oils advised by FERABOLI S.p.A. in chapter “9.11_Lubrication”; another type of oil could create pumping problems.

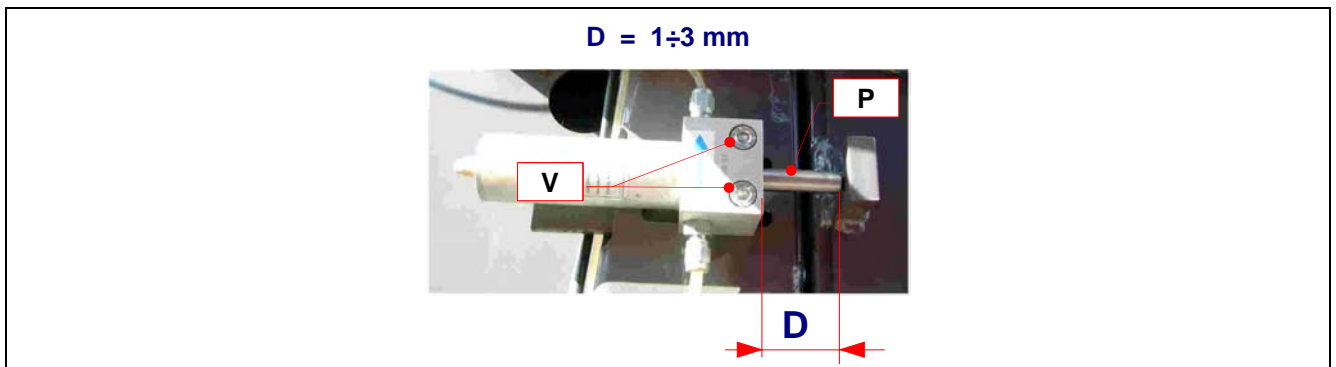
9.12.1_AUTOMATIC OILING OF THE CHAINS

The round baler is provided with an automatic oiling system for the chains.

This system works every time the tailgate closes by means of the movement of a small pump.

The flow of oil can be regulated by adjusting the travel of the piston “**P**” located on the small pump.

If the flow of oil coming out is too low or too high, adjust the distance “**D**” so as to increase or decrease the travel of the piston of the small pump:



- Open the left lateral protection guard and move to a position where you can reach the small automatic oiling pump located directly under the hinge of the guard.
- Loosen the two hexagonal bolts “**V**” and slide the pump along the slots in order to increase or decrease the distance “**D**”.



THE GREATER the distance “**D**” the greater is the flow of oil pumped and put into circulation by the automatic lubrication system of the chains.

THE SMALLER the distance “**D**” the smaller is the flow of oil pumped and put into circulation by the automatic lubrication system of the chains.

- Tighten the two socket head screws
The maximum stroke allowed is at least 10 mm.
- After making the adjustment, close the left lateral guard.

9.12.2_TANK

Check and top up the oil tank of the automatic oiling system of the chains:

- Open the left lateral guard.
- Unscrew the plug "T", fill up the oil tank and screw back the plug "T".

THE OIL CAPACITY OF THE TANK IS 1.5 LITERS.

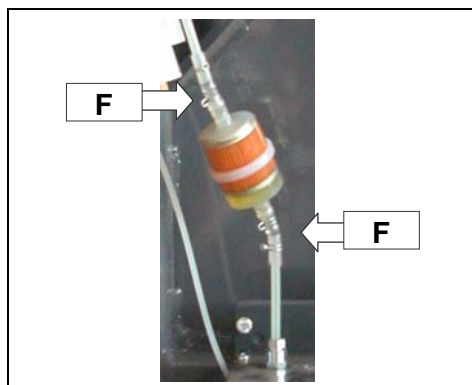


- After topping up the tank, shut the left lateral guard.

9.12.3_FILTER

Regularly check the condition of the filter of the automatic oiling system of the chains; if you have to replace it:

- Open the left lateral guard.
- Loosen the clamps "F" and replace the filter with a new one of the same type.
- Tighten the 2 clamps "F".



- After replacing the filter, shut the left lateral guard.

9.12.4_MANUAL OILING OF THE CHAINS



WARNING! Never do this maintenance work with the baler working:

- **Stop the tractor, remove the keys from the dashboard and wait for all the moving parts of the machine to stop completely.**
- **Switch off the control system.**



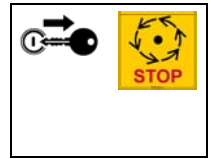
All the chains that are not oiled by the automatic oiling system must be lubricated manually using a mixture of oil and grease.

Regularly check and lubricate these chains with special care for the transmission chains of the pick-up.

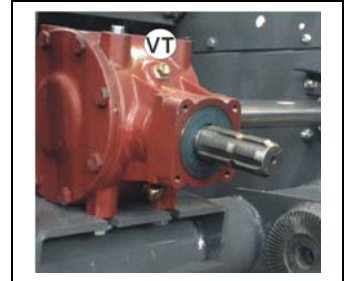
9.12.5_ DEVIATION BOX**WARNING!**

Never do this maintenance work with the baler working:

- Stop the machine and wait for all the moving parts to stop.
- Switch off the tractor and remove the keys from the dashboard.



- Unscrew and remove the plug screw “VT” so as to be able to check the oil level inside the box.
- If the oil comes out of the box or is at the same level as the hole of the screw “VT” then the oil level is correct.

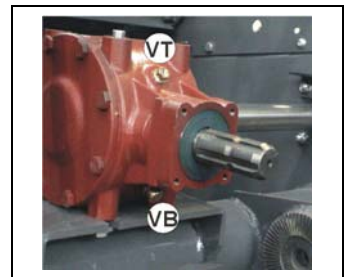
**WARNING!**

- Regularly check the oil level in the transmission box every 1000 bales and every 50 working hours.
- Use the oils advised by **FERABOLI S.p.A.** in paragraph “11.1_ Types of oil and grease”.

If the quantity of oil in the transmission box is insufficient it must be topped up.

THE QUANTITY OF OIL NEEDED IS 1.1 kg

- Unscrew and remove the plug screw “VT” located on the top part of the box.
- Then check that the oil level in the transmission box is correct.
- When finished re-close with the plug screw “VT”.

**Should it be necessary to drain oil from the transmission box:**

- First obtain a container to collect the oil discharge.
- From a position under the machine unscrew and remove the plug screw “VB” located at the bottom of the box which can be reached through the hole located on the crosspiece on the machine frame.
- Drain the oil from the box into the container you obtained previously.
- Then screw back the plug “VB”.

**CAUTION!**

Observe the laws in force in your country regarding the use and disposal of oils and lubricants.

9.13_CLEANING

**WARNING!**

Before performing any cleaning operation:

- Stop the tractor, remove the keys from the dashboard and wait for all the moving parts of the machine to stop completely.
- Switch off the control system.

**IMPORTANT!**

- Do not use abrasive products, solvents or alcohol.
- Do not use high pressure water jets, especially on the cables.
- Keep the engine transmission clean in regard to twine, net or the product on order not to damage bearings and seals; all the gears and chains must also be kept clean.
- Never allow corrosive chemical agents to come into contact with the cylinders to avoid altering the surface of the piston.
- Check that deposits of earth or the product are cleaned off all the sockets, plugs, cables and sensors located on the round baler; wipe them with a damp cloth.
- Clean the terminal display with a damp cloth and a delicate detergent to avoid erasing the silk-screen printing on the panel.

9.14_AFTER THE FIRST 30 HOURS OF WORK

**WARNING!**

Before carrying out any inspections or checks:

- Stop the tractor, remove the keys from the dashboard and wait for all the moving parts of the machine to stop completely.
- Switch off the control system.

**IMPORTANT!**

Every new machine must be inspected after the first 30 hours of work, with checks on the following:

- Correct tightening of all the bolts and screws.
- All the transmission chain tension values.
- The absence of oil leaks from all the components of the hydraulic system.
- The inflation pressure of the tyres.
- The correct lubrication of the transmission parts.
- Keep to the lubricants advised.
- Spare parts must meet the requirements as defined by **FERABOLI S.p.A.**



USE ONLY ORIGINAL SPARE PARTS.

9.15_DAILY CHECKS

**WARNING!**

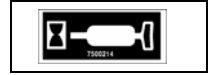
Before doing any daily inspections or check

- Stop the tractor, remove the keys from the dashboard and wait for all the moving parts of the machine to stop completely.
- Switch off the control system.



Every day check the general condition of the machine: the wear of the crown wheels, supports, bearings, chains, pins, shafts and all the moving and rotating parts of the machine.

Do a complete greasing.

**IMPORTANT!**

Before using the machine each time make sure that there are no oil spots on the ground. If there are oil spots **DO NOT START** the machine.

Find out where the oil leak is and after determining the extent of the damage contact the authorised assistance service.

The following checks should be done with regular frequency (and in any case at the beginning of each season) following the instructions given in this manual:

- Check and change the oil.
- Check correct tightening of the bolts and screws.
- Lubricate or grease every point where needed.



- Check the correct working of the electrical system.
- Check the tyre inflation pressure.
- Before moving the machine to the field, check the correct working of the machine and the absence of any irregular vibrations or unusual noises.

9.16_SPECIAL MAINTENANCE

**IMPORTANT!**

In the event of any breakage or poor functioning, contact your **FERABOLI S.p.A.** dealer directly.



9.17_STORAGE



IMPORTANT!

- If these operations are carefully done you will have the benefit of a machine in excellent condition that is ready to resume work.
- If the machine is to be scrapped, respect the laws in force regarding pollution and the disposal of lubricants in your country.

9.17.1_STORAGE OF THE MACHINE

At the end of the season, or if a long period of rest is foreseen, the following instructions should be followed:

- Make sure that the machine is completely unloaded.
- Release the pressure in the hydraulic circuit.
- Store the machine in a closed area under surveillance in order to prevent the entry of unauthorised persons.
- Keep the machine in a dry place, protected from adverse weather conditions and on a suitable flat surface. To avoid sudden unwanted movements of the machine, place wedges under the wheels.
- Make sure that all the guards on the machine are in their correct positions.
- Thoroughly clean the machine, dirt attracts humidity and as a result the metallic parts can rust.
- Inspect everything carefully and if necessary replace any damaged or worn parts.
- Carefully lubricate all the required points, apply antirust or oil or grease to all the metallic parts not covered with paint or with paint peeled off to protect from rust.
- Oil the blades of the binders, clean and oil all the chains.
- Grease all the exposed parts of the cylinder rods and electrical actuators.
- Cover the baler with a plastic sheet.

9.17.2_STORAGE OF THE CONTROL SYSTEM

- Remove the control terminal.
- Keep them in a dry place protected from inclement weather, dust, humidity, insects and rodents.

9.17.3_STORAGE OF THE CARDAN SHAFT

- Remove the cardan shaft and place it in a dry protected place.

For further information read the instruction and maintenance booklet of the cardan shaft provided together with it.

9.17.4_STORAGE OF THE TWINE - NET

The twine spools and the net rolls must be removed from the machine and stored in their respective boxes in a dry protected place.

Keep these boxes in a place protected from the possible attack of rodents.



IMPORTANT!

Handle the twine spools and the net rolls with care so as not to cause injury.

9.18_BEFORE RESUMING WORK IN THE FIELD

Before resuming work check the condition of your machine thoroughly and do all the necessary maintenance as described in this manual "*9_Maintenance and adjustment*".

- Reread this operator manual.
- Always observe the safety regulations contained in this manual "*4_General safety regulations*".

9.19_SPARE PARTS



USE ONLY ORIGINAL SPARE PARTS



All the parts of the baler can be requested from the **FERABOLI** Spare Parts Service by specifying:

- Model of the machine.
- Serial number of the machine.
- Year of manufacture.
- Code number of the part desired (found in the spare parts catalogue), description and quantity.

Finally, please remember that **FERABOLI S.p.A.** is available for any need for assistance or spare parts; you will find the list of telephone and fax numbers on the last page of this manual.

10_CONTROL SYSTEM

The control unit installed in the tractor cabin within reach of the operator makes the various control and bale tying functions accessible.

The control unit is provided with:

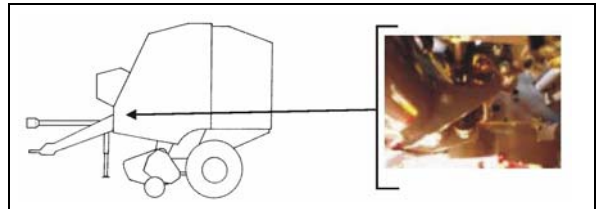
- pilot lights to give warnings
- a display for the count of bales and error messages
- switches and changeover switches to activate the various devices
- an audible alarm
- a socket for connection to the cable of the machine



10.1_SYSTEM COMPONENTS

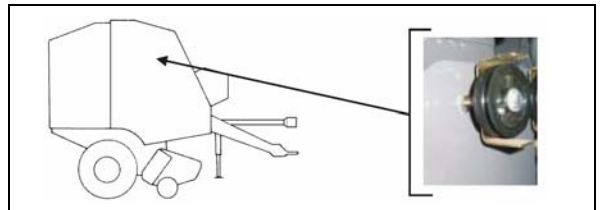
10.1.1_TWINE BINDER ACTUATOR

A linear electric actuator regulates the movement of the binder arm when the threads of twine are being started on the bale.



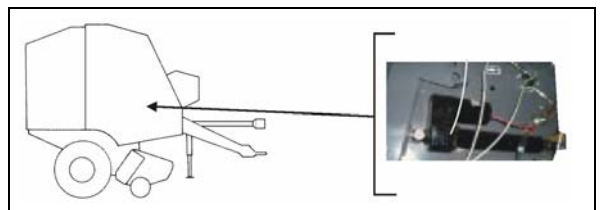
10.1.2_TWINE FLOW SENSORS

A proximity sensor on the pulley checks the flow of twine during the binding cycle.



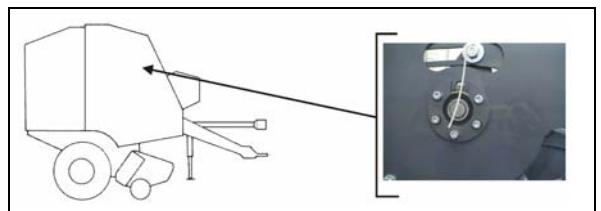
10.1.3_NET WRAPPER ACTUATOR

A linear electric actuator regulates the movement of the net arm when the net is being started on the bale.



10.1.4_NET COUNTER SENSOR

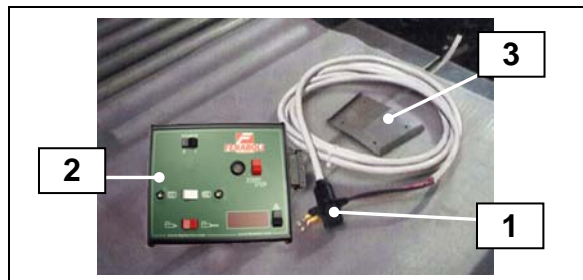
A proximity sensor counts the number of turns of the net stretching roller.



10.2_ INSTALLATION

Check that you have the following materials at hand which can be found in the box provided with the machine:

- 1) Power feed cable complete with fuse holder and 50 Amp strip fuse
- 2) Control unit terminal
- 3) Dovetail



10.3_ MOUNTING ON THE TRACTOR

10.3.1_ POWER CABLE

With the tractor switched off, disconnect the earth cable from the battery, then connect the power feed cable to the terminals of the 12V battery, connecting the red wire (+) to the positive pole and the black wire (-) to the negative pole.

Reconnect the earth cable.



CAUTION!:

Some power cables may be brown and blue. In this case the brown wire is positive (+) and the blue wire is negative (-).

- **Make sure not to invert the polarity.**

Secure the cable along the tractor, so that the COBO connector is at the height of the towing eye or near the PTO.



CAUTION!: Be careful not to knock the PTO and do not obstruct the movement of working parts, once it is connected with the cable of the machine.

10.3.2_ DOVETAIL AND CONTROL UNIT

Secure the dovetail in the tractor cabin so that the control unit terminal is easy to reach.

The control unit terminal should be mounted on the dovetail during work

10.4_ MACHINE-TRACTOR CONNECTION

10.4.1_ DATA TRANSMISSION CABLE

Connect the data transmission cable provided with “24 pole rectangular connector” located on the drawbar of the machine to the control unit.

Mount the control unit on the dovetail previously installed in the cabin.

10.4.2_ POWER CABLE

Now connect the power feed cable of the machine to the power feed cable of the tractor.

Make sure that the clip of the cover of the female COBO connector of the power feed cable of the machine is inserted in the slot of the male COBO connector of the tractor power feed cable.

This will avoid accidental disconnection of the two cables with consequent black out of the system.



CAUTION!: Check that the cables do not obstruct the driving movements and are not near to moving parts.

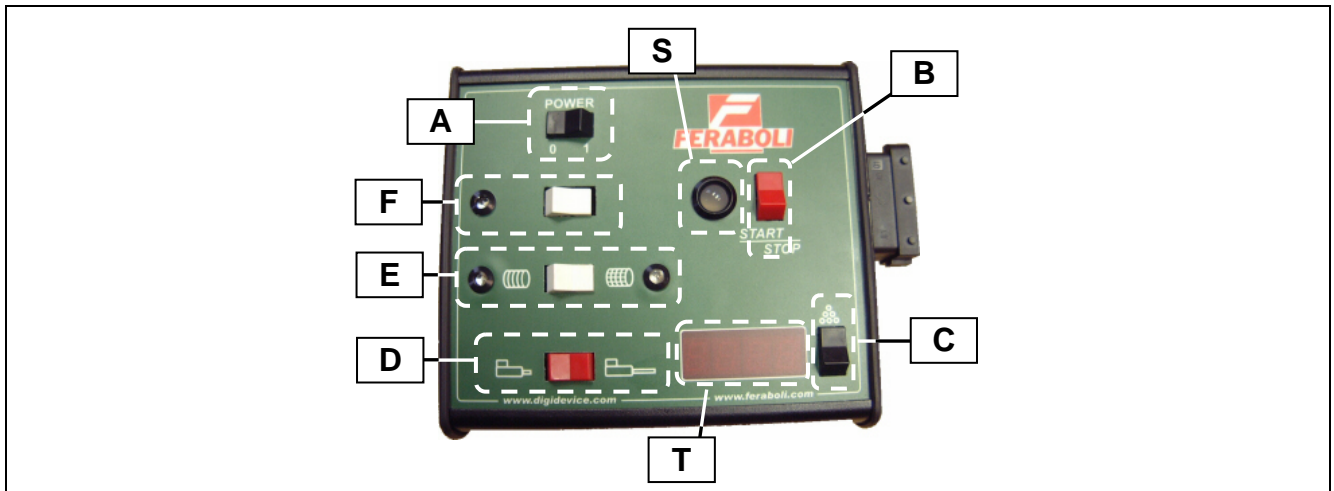
To check the connection press the “**POWER**” key of the control unit in position “1” and check that it comes on.



IMPORTANT!: On the data transmission cable, near the “24 pole rectangular connector”, there is a protective fuse:

- 40 Ampere AL LAMA FASTOM 6,3mm - DIN 72581/36

10.5_DESCRIPTION OF THE KEYS



(A) Two position switch **“POWER”**

Switches the system on and off:

- **“0” = OFF**
- **“1” = ON**



(B) **“START/STOP”** button

- As soon as the control unit comes on this starts the function test.
- During work it starts the binding cycle or interrupts the movement of the actuator.



(C) **“COUNTER”** button

- This button, each time pressed, alternates the display of the partial count and the total count of the bales.
- If kept held down for about five seconds during the display of the partial count, it zeroes the counter (it does not zero the overall counter).



(D) **“ACTUATORS”** button

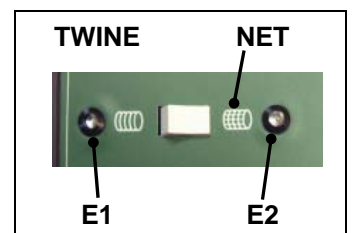
- Controls the actuators of the binders in manual mode.



(E) **“BINDING”** selector

This is for selecting the type of binder unit (twine binder or net wrapper) to be used in binding and during manual movement of the actuators.

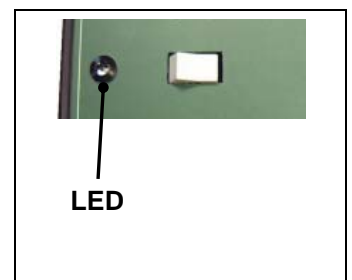
- **LED “E1”** = If on this indicates that the **“TWINE”** binder has been selected.
- **LED “E2”** = If on this indicates that the **“NET”** wrapper has been selected.



(F) Selector **“AUTO/OPER”**

Used to select the tying mode to be used during the work cycle:

- **“AUTO” (LED on) = automatic tying**
If selected, the bale tying cycle will start automatically.
- **“OPER” = manual tying (led off)**
If selected, the bale tying cycle must be started manually using the **“START/STOP”** key

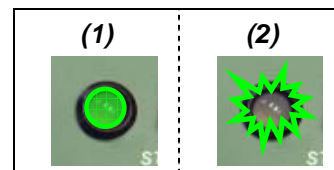


(S) “PILOT LAMP”

The luminous signal, of two different colours “**GREEN**” or “**RED**”, constant or intermittent, communicates information to the operator.

Example of PILOT LAMP with GREEN light color:

- 1) **constant**
- 2) **intermittent**

**(T) “Display”** alphanumeric 4 figure.

- Displays the number of the counters (partial or total) and displays error messages.

**10.6 NORMAL START****WARNING!**

If the control unit is on, (switch “**POWER**” to position 1), you have to turn it off, (switch “**POWER**” to position 0), and connect the power cable to the outlet located on the control unit, otherwise the control unit may not work correctly.

- Turn the switch “**POWER**” to position 1.



On switching on no automatic control is activated.

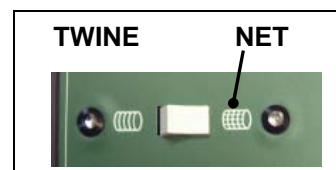
The controls for moving the motors are disabled (the pilot light flashes GREEN/RED).

- Pressing the “**START/STOP**” key starts the test cycle that brings the motors to the rest position (outside the chamber).



The buzzer sounds briefly before starting the cycle and then sounds intermittently while the motors are moving.

At the end of the procedure the motor indicated by the **TWINE/NET** selector is selected definitively and the corresponding **LED** comes on.



Now the control unit is ready for **pick-up, binding and ejection**.

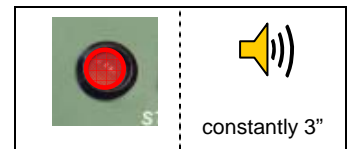
To indicate that the machine is **ready** for pick-up, **during the product pick-up phase**, the PILOT LIGHT is GREEN and the buzzer is off.



Once the pick-up chamber is full (bale formed) the binding phase starts

In the state of **chamber full** the PILOT LIGHT is constantly lit up RED.

The buzzer sounds constantly for about 3 seconds.

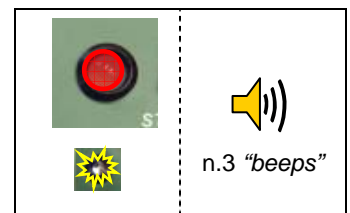


The bale tying process must be started as follows depending on the tying mode selected:

- **AUTO:** tying starts automatically
- **OPER:** to start tying press the **"START/STOP"** key.

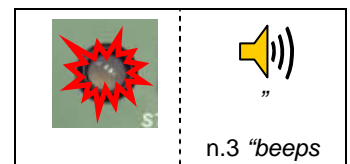
During the **binding cycle** the PILOT LIGHT is constantly lit up RED.

The LED of the binder in use flashes and the buzzer beeps three times and then stops to indicate that the cycle has started.

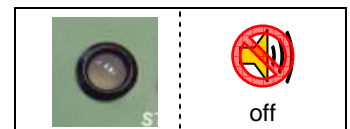


When the binding is finished the **ejection** phase follows.

The RED PILOT LIGHT flashes and three beeps indicate the request to **open tailgate**.



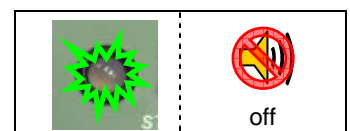
During the ejection phase the PILOT LIGHT and the buzzer are off.



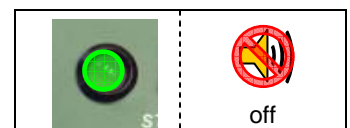
After ejection, the counter increases the number of bales made.

The request to close the tailgate is indicated by the flashing GREEN PILOT LIGHT.

The buzzer is off throughout this phase.



When the PILOT LIGHT returns to a constant GREEN this means that the machine is ready for a new work cycle.



If after closure the hooks of the tailgate open again, this problem is signalled by a fast intermittent beeping of the buzzer and GREEN fast flashing of the PILOT LIGHT at the same time.

In this case the tailgate must be closed again.



10.7_BINDER SELECTION AND MANUAL CONTROLS

Manual controls for moving the motor selected can be used at any time.

During an active binding cycle it is necessary to interrupt the cycle by pressing the **“START/STOP”** key to switch over to manual control of the motors.



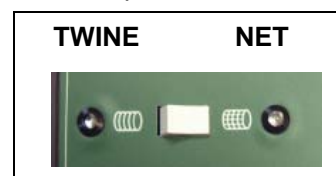
and then control the motor selected using the manual key.



Whenever you wish to change the binder it is necessary to move the motor in use to the rest position.

If this is not done the corresponding LED does not change even though the TWINE/NET selector has been changed.

It is therefore necessary to move the motor to the rest position (go on for at least one second against the end of travel of the actuator) and set the selector change again.





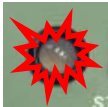


10.8_COUNTER KEY

On switching on the numeric display indicates the partial number of bales made preceded by the letter **“P”** (ex. **P015**).

- Press the **“COUNTER”** key briefly (next to the display) to pass to the display of the total number of bales bound.
- Pressing the **“COUNTER”** again briefly switches back to the partial counter **“P”**.
- Holding the **“COUNTER”** key down for a few seconds during the display of the partial counter **“P”**, zeroes the partial count but not the total count.



10.9_LIST OF ALARMS

ALARM	PILOT LIGHT		
Tailgate open.	GREEN fast flashing.		Fast intermittent.
Incorrect binding.	RED slow flashing.		Slow intermittent.
Movement of binders on switching on.	PILOT LIGHT OFF. LED of the motor in motion flashing.	 	Short constant + intermittent during movement.

11_ TABLES AND DIAGRAMS

11.1_ TYPES OF OIL AND GREASE

USE	TYPE
PTO deviation box	AGIP BLASIA EP 150
Greasing points	AGIP GR MU EP0
Tank for chain automatic oiling	AGIP OSO 100
Manual lubrication of chains	Mixture of oil and grease

11.2_ LUBRICATION OPERATIONS

All the operations described below **must** be done at the beginning and end of each season.

When lubricating always respect the regulations contained in the chapter “9_ Maintenance and adjustment”.

OPERATIONS TO BE DONE	DAYS	MONTHS
Grease all points provided for by decal 7500214.	10	
Grease hinges of tailgate.	2	
Grease pins of jacks.	2	
Grease connecting rod of the feeder	2	
Grease track of cams of pick-up unit.		1
Grease cardan shaft. *	*	12
Replace oil of deviation box.		12
Manually lubricate transmission chains of pick-up unit.	1	

(*) For further information on the maintenance of the cardan shaft consult the instructions contained in the booklet provided together with the cardan shaft.

11.3_MAINTENANCE WORK



All the operations described below **must** be done at the beginning and end of each season.

When doing maintenance work always respect the regulations contained in the chapter “9_Maintenance and adjustment”.

OPERATIONS TO BE DONE	DAYS	MONTHS	BALE
Check the condition of the supports, bearings, pins and shafts.	7		
Check the tension of the chains.	3		
Check the bearings of the roll-holder and the bushings of the spring bearing bars of the reel-holder.	7		
Check the cams and the collection tines of the pick-up.		1	
Check the pressure of the tyres.		1	
Check that the jacks, hydraulic tubes and fittings do not have any oil leaks.	7		
Check the oil level in the deviation box.		1	1000
Check and re-sharpen the knives (only mod. “TROTTER 110 CUT”)			300
Check the oil filter of the automatic oiling system.		12	
Check that the electrical light system works for road transport.	1		
Check the cables.		6	
Check if bolts and screws are correctly tightened.		1	
Check the welds.		12	
Check the condition of the adhesive safety signs (pictograms).		1	
Check the condition of all the protection guards and safety measures.		1	

- Grease and lubricate in accordance with the times described in the table “11.2_Lubrication operations”.
- At the beginning and end of each season always give your round baler a complete and thorough cleaning.

11.4_TORQUE SETTINGS

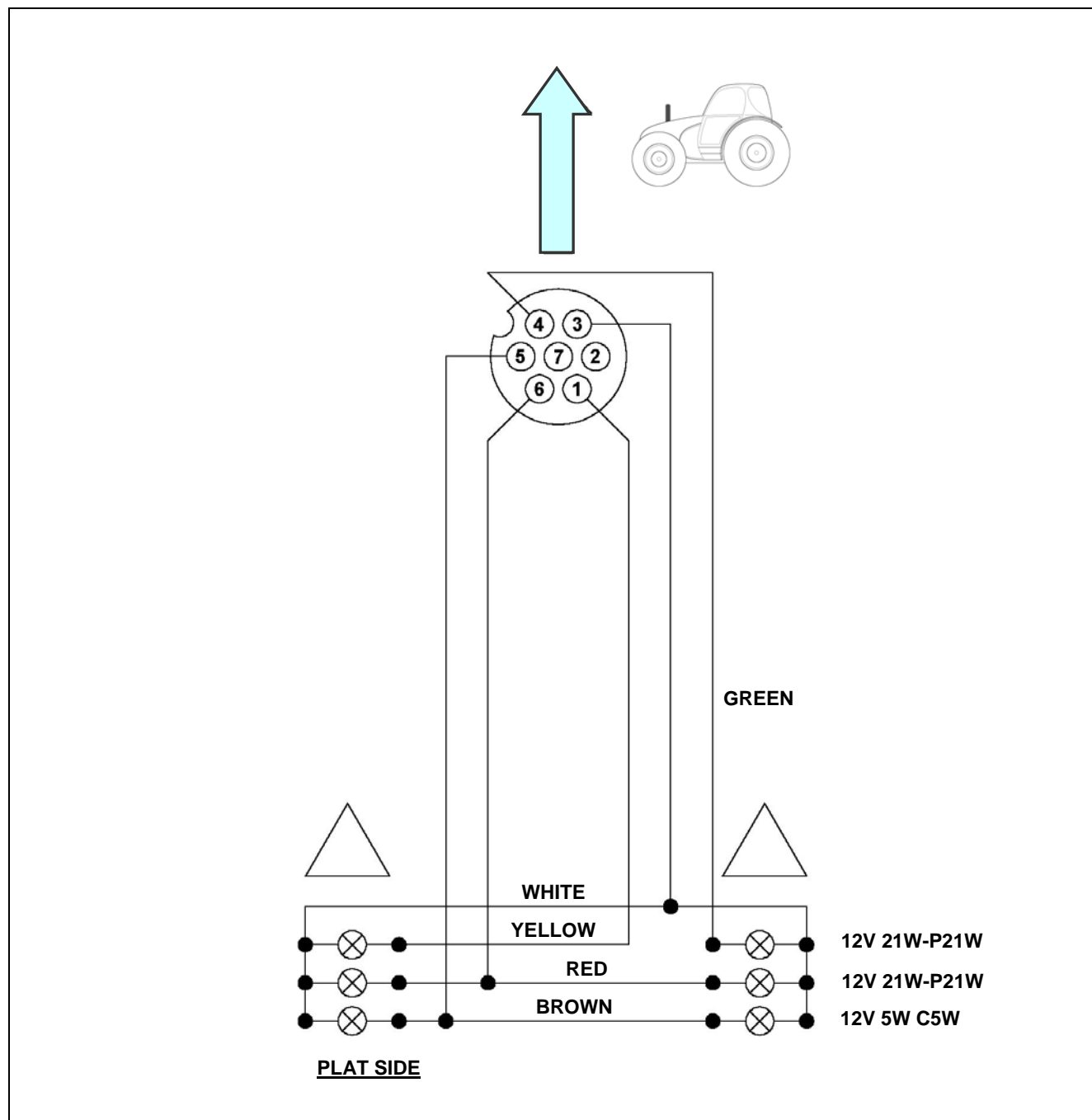
	R = 8.8		R=10.9		R=12.9			
	Nm	ft-lb	Nm	ft-lb	Nm	ft-lb	mm	inch
M3	1,3	(11,5)*	1,8	(16)*	2,1	(18,6)*	6	1/4
M4	2,9	(25,5)*	4,1	(36,5)*	4,9	(43,5)*	8	5/16
M5	5,7	(50,5)*	8,1	(71,5)*	9,7	(86)*	9	23/24
M6	9,9	7,3	14	10,3	17	12,5	10	13/22
M8	24	17,7	34	25	41	30,3	13	9/16
M10	48	35,4	68	50,2	81	59,8	17	11/16
M12	85	62,7	120	88,6	145	107	19	3/4
M14	135	99,6	190	140	225	166	22	7/8
M16	210	155	290	214	350	258	24	121/128
M18	290	214	400	295	480	354	27	1.9/128
M20	400	295	570	421	680	502	30	1.3/16
M22	550	406	770	568	920	679	32	1.17/64

N.B. Values in brackets are expressed: **in-lb**

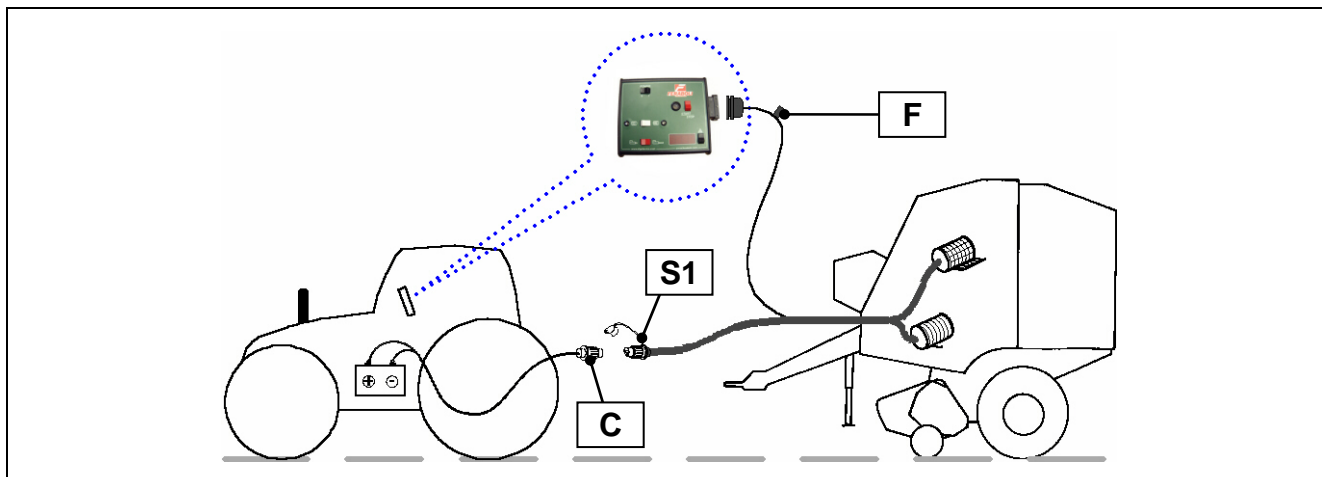
11.5_TYRE PRESSURE VALUES

TYRE	bar
11.5/80-15.3	3,4

11.6_DRIVING LIGHTS ELECTRICAL SYSTEM



11.7_MATING CONNECTORS

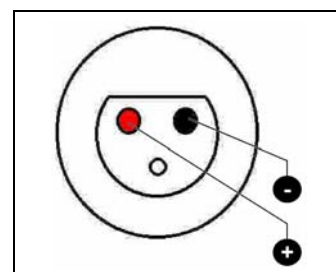


Power cable on tractor side:

“S1” = Female connector COBO (back view):

+) = RED: positive 12V

-) = BLACK: negative

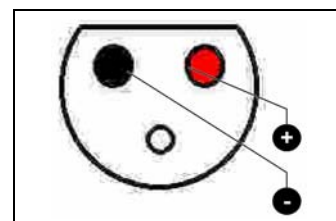


Power cable on machine side:

“C” = Male COBO connector (back view):

+) = RED: positive 12V

-) = BLACK: negative



“F” = Fuse 40 Ampere AL LAMA FASTOM 6,3mm - DIN 72581/36

12_PROBLEMS AND CAUSES

These tables summarise the most probable and recurring problems that you may encounter while working. **However, if the solutions suggested do not resolve the problem please contact your Dealer or our Assistance Service directly. They will be able to provide you with the technical advice necessary for resolving the problem.**

12.1_CARDAN SHAFT

PROBLEM	POSSIBLE CAUSE	SOLUTION
Safety bolt breaks down.	Bale too heavy.	Reduce bale weight.

12.2_FEEDING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Tines of the pick-up throw up the forage.	Pick-up speed too fast compared to working speed.	Increase working speed.
		Reduce the r.p.m. of the Tractor's PTO.
The tines of the pick-up overtake the incoming forage.	Pick-up speed too slow compared to working speed.	Reduce working speed.
		Increase the r.p.m. of the tractor's PTO.
Pick-up does not collect the whole swath.	Too large swath.	Reform the swath by making it narrower.
Pick-up does not collect on flat swaths.	Too high pick-up.	Lower pick-up using the tractor selector.
		Adjust position of support wheels of pick-up unit.
Pick-up skips and stops.	Safety bolt broken.	Reduce the volume of the swath by half.
		Raise pick-up by adjusting position of support wheels.
		Remove the blockage and replace the safety bolt.
Insufficient gathering of product.	Tines damaged or missing.	Replace tines.

12.3_BALE FORMATION

PROBLEM	POSSIBLE CAUSE	SOLUTION
Truncated cone-shaped or barrel-shaped bales.	The forage is collected and brought only to the centre.	For single swaths load on the right and on the left.
	Swath too high.	Reform the swath making it wider, fuller and more square.
The bale stops turning.	The torque limiter of the cardan shaft intervenes.	Reset the torque limiter of the cardan shaft (follow the instructions described in the cardan shaft manual).
	The capacity of the chamber has been exceeded.	Stop when the STOP signal appears.
Excessive loss of leaves.	Excessive shredding or fragmentation of forage.	Increase the work speed and reduce the PTO speed while baling.
The forage wraps around the rollers.	Humidity of the forage too high.	The forage must be conditioned, bale when the humidity is quite low.
The chains jump over the teeth of the gears.	The tensioners are loose.	Stretch the chains by adjusting the tensioners.
	The gears or chains are worn.	Replace the gears or the chains.

12.4_TWINE BINDER

PROBLEM	POSSIBLE CAUSE	SOLUTION
Binding of the central part insufficient.	The twine guiding arm moves too quickly.	Reduce the speed of the trolley by changing gear.
Twines are not driven by the bale.	The ends of the twine that protrude from the tubes of the twine guiding arm are not long enough.	Make the twine dangle by a length of at least 20cm.
	The twine does not pass freely.	Adjust the tension of the springs of the twine braking device and check the path of the twine.
	The points of passage of the twine are blocked with dirt or forage.	Check and clean all the points of passage of the twine.
	The twine is not cut correctly.	Replace the blade or adjust the blade arm.
Twines cannot be cut.	The blade is worn.	Turn the blade of the twine cutter around or replace it.

12.5_NET WRAPPER

PROBLEM	POSSIBLE CAUSE	SOLUTION
The net does not start to wrap the bale.	The end of the net does not protrude enough.	Make the net dangle at least 20cm.
	The adjusting retainers of the net arm are not adjusted correctly.	Adjust the retainers so as to allow the net arm to approach the roller.
The net is not cut correctly.	The cutting edges of the blade sections are worn away.	Sharpen the blade sections.
	The net roll has insufficient braking.	Increase the braking by adjusting or shimming the lateral spring tie-rods.

12.6_CUT DEVICE (only model "TROTTER 110 CUT")

PROBLEM	POSSIBLE CAUSE	SOLUTION
The rotor does not turn.	The shear bolt of the safety device is broken.	Replace the shear bolt.
The knives do not engage in the cutter	Presence of product obstructing the slots.	Clean the slots (housings) before installing the knives or false knives.
	Actuator does not move.	Make sure that the lever of the "PICK-UP/CUT" selector is set to "CUT" position.
The product is not cut	The knives are disengaged and not in the work position.	Engage the knives in the work position.
	The knives are blunt.	Remove the knives and sharpen them.

12.7_HYDRAULIC SYSTEM

PROBLEM	POSSIBLE CAUSE	SOLUTION
The tailgate does not close.	The valve is closed.	Open the valve.
	Some forage is left in the closing area of the tailgate.	Remove the forage.
	The return line of the hydraulic system has been disconnected from the tractor.	Check and correctly insert the quick-release coupling of the return line of the hydraulic system.
The hydraulic system does not work.	The hydraulic outlets have not been activated.	Activate the auxiliary hydraulic outlets from the tractor.
	The hydraulic tubes are not connected properly to the auxiliary connections of the tractor.	Check and correctly insert the quick-release couplings in the auxiliary connections of the tractor.
	Insufficient flow of hydraulic oil.	Check and if necessary top up the hydraulic oil level in the tank on the tractor.
	Pump worn or damaged (low pressure).	Repair or replace the hydraulic pump of the tractor.
	Dirt has accumulated inside the hydraulic circuit.	Flush the system and if necessary replace the hydraulic oil filters.
	The hydraulic cylinders leak oil.	Replace the seals of the hydraulic cylinders.
	There are oil leaks in the hydraulic system.	Check the tubes and if necessary tighten the fittings.

12.8_CONNECTION PROBLEMS OF THE CONTROL UNIT

PROBLEM	POSSIBLE CAUSE	SOLUTION
After switching it on, the display does not light up.	Power cable of the battery not connected to the machine cable.	Connect the male COBO plug of the machine cable to the female COBO socket of the power feed cable connected to the battery. Check that the clip of the female connector is inserted in the slot of the male connector to ensure a secure connection.
	Data transmission cable not connected to the display.	Insert the data transmission connector in the female socket at the bottom of the display.
	Inverted polarity.	Invert the cable connections on the terminals of the battery. The red cable provided with a fuse should be attached to the positive "+" terminal, the black cable to the negative "-" terminal.
	Contact oxidation on tractor's battery.	Thoroughly clean all terminals. Check good condition of battery. Minimum guaranteed voltage should be 12V.
	Fuse burnt out or missing.	Check that there is a fuse (40 Amp strip fuse) or that the fuse has not burnt out in the fuse holder connected to the cable near the rectangular 24 pole plug.

13_ACCESSORIES AND KITS (optional)

To improve performance and operations of the round baler, it is possible to use a set of accessories and kits which can be applied to the machine upon request.

Contact your Dealer or our Spare Parts Service to check the accessories and/or the kits which are available and most suitable for the round baler model you purchased.

13.1_ACCESSORIES

These optional accessories, if ordered at the time the round baler is purchased, are fitted directly onto the machine by the Manufacturer:

- Net wrapper.
- Twine binder.
- Tyres.

13.1_KITS

These optional kits can be purchased and assembled by the operator on a later stage.

These kits are supplied together with all the necessary instructions for assembling and dismantling them each time work needs so require:

- Bale ejector.
- False knives.

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